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# FIRE ENGINEERING

A Consolidation of
FIRE AND WATER ENGINEERING *and* THE FIRE ENGINEER

MARCH 23, 1927


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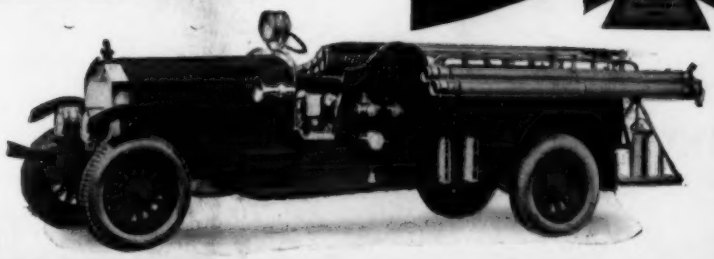

# 5 stations —or— 50

**When you buy a Federal Code Siren System, it makes no difference how many stations your initial order calls for — additional stations may be added at any time without interruption to service or change in equipment.**

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# Ladder Strength

## As Necessary as Water!

At a fire, safety depends upon ladder strength. Seagrave Trussed Ladders are built to stand any test, with a half a ton margin of safety. Main and truss beams are selected Douglas fir, free of pitch pockets, cross runs and knots. Rungs of Seagrave Trussed Ladders are made from second growth hickory, seasoned and inspected five or more times.

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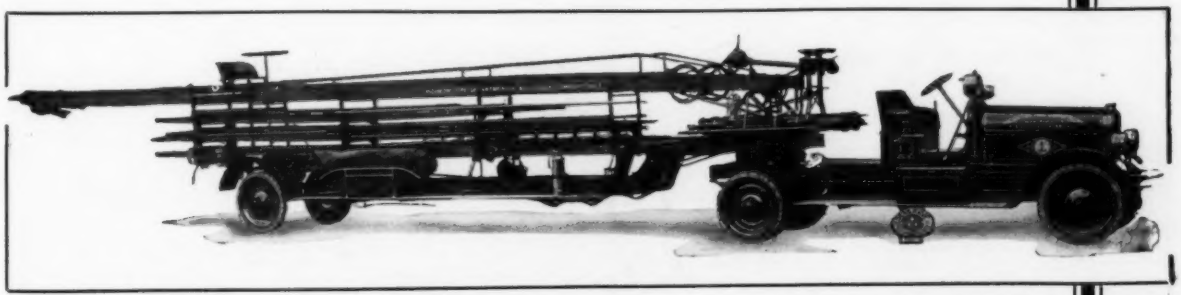

*The Seagrave Aerial Ladder Truck, shown here, is completely equipped with Seagrave Trussed Ladders.*

*The Journal of the Fire Protection Profession Since 1877*

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# FIRE ENGINEERING

*A Consolidation of* FIRE AND WATER ENGINEERING and THE FIRE ENGINEER

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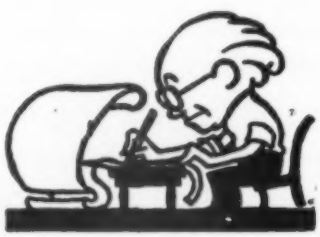

## The Chief Writes us a Letter

ONE of the many friendly letters we are receiving from our readers is the following from Lakefield, Ont.:

¶ "I want to say that your magazine is a wonderful journal and one which every chief should have; and I would have had it sooner too, only I didn't know about it. I am like a lot of other fellows, merely in this game as a hobby and the community spirit,—wholly a volunteer; but I am anxious to learn all I can about the game. I certainly have digested everything in the copies I have so far received, and **believe me, it is worth while stuff!** I have found many solutions to my problems already and am ready to learn more.

With best wishes,
Yours truly,
ALLAN H. CLARK,
Chief, F. D."

¶ All right, old top, we'll do our best to give you more of what you want! Glad you like it!

*The Publishers*

# CONTENTS

MARCH 23, 1927

VOL. LXXX No. 6

**Efficient Records for Fire Alarm Systems, by Edwin P. Cochran (Illustrated)** ..... 271
How The Hartford, Conn., Fire Alarm Telegraph Superintendent Keeps Careful Note of His System.

**A Big Fire And a Small Department (Illustrated)** .... 273
Garages, Lumber Yards and Frame Buildings Make Dangerous Blaze In Eastern City.

**Theatre Safety—How It Can Be Accomplished (Illustrated)** ..... 275
Suggestions by the Engineers of the National Board of Fire Underwriters as to This Matter.

**Modern Fire Alarm Signalling (Illustrated)** ..... 277
Twenty-second of a Series of Articles on the Problems of Installation, Repair and Upkeep of a Fire Alarm System.

**New Rules of New York Fire Department** ..... 279
Tenth Installment of Book of Rules to be Published Serially in FIRE ENGINEERING.

**With the Editor** ..... 281
Comments on Current Events and Live Topics by our Editorial Staff.

**Questions and Answers** ..... 283
Replies to Questions on all Manner of Subjects of Fire Fighting and Fire Protection.

**Recent Important Fires Specially Reported (Illustrated)** ..... 285
Large Fire In Syracuse, N. Y.—Burnings of the Week.

**The University of Illinois Course of Instruction in Fire Protection (Illustrated)** ..... 288
Modern Methods of Fire Extinguishment, by Harry K. Rogers.

**Industrial Plant Protection (Illustrated)** ..... 289
Some Items of Interest to Industrial Plant Brigades.

**Volunteer Fire Department (Illustrated)** ..... 294
Matters of Interest to Volunteer Firemen.

**Fire Department Activities** ..... 297
Newsy Notes from All Over the Country with Matters Firemanic.

**Fire Department Improvements** ..... 301
Record of Business Activities in the Fire Protection Field.

**False Alarms** ..... 302
The Humorous Side of the Fire Protection Profession.

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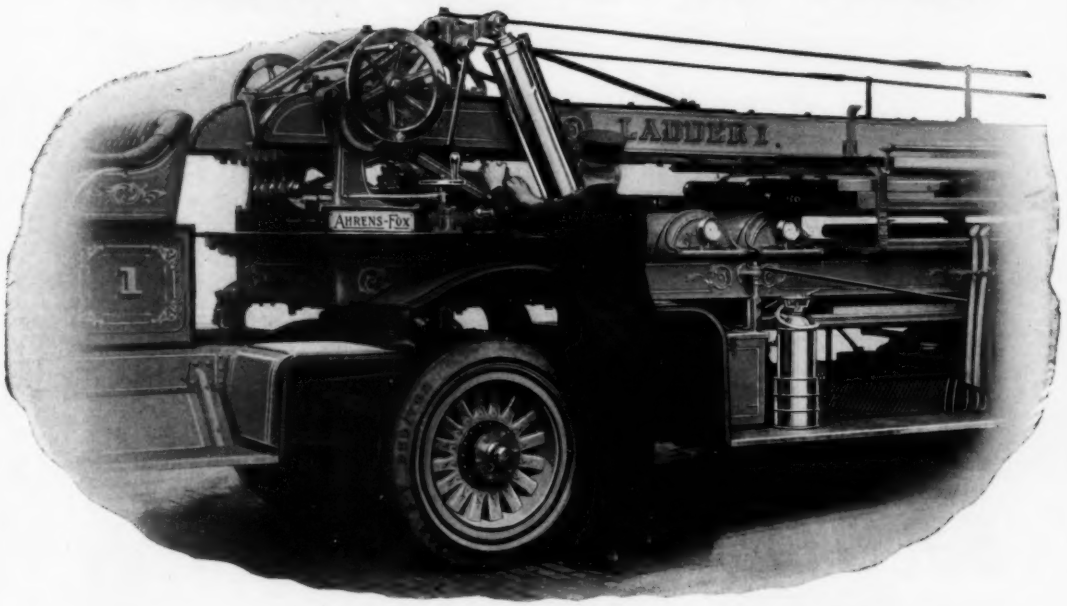
# Ahrens-Fox

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### is Easily Operated and is Rugged and Dependable

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This Pneumatic Ladder Hoist in its present advanced form has a much reduced over-all height with lower center of gravity. The turntable is of exceptionally rugged construction. All surfaces are accurately machined and the turntable revolves on steel ball bearings.

These are just a few of the many points of merit in the design and construction of the Ahrens-Fox ladder hoist, but there isn't room here to give you more than a slight idea of its advantages, and the superiority of Ahrens-Fox Ladder Trucks.

However, if you will send us your name, position, and address we shall be glad to send you Bulletins with complete information on this improved aerial ladder control, on ladder trucks, and on Ahrens-Fox apparatus in general.

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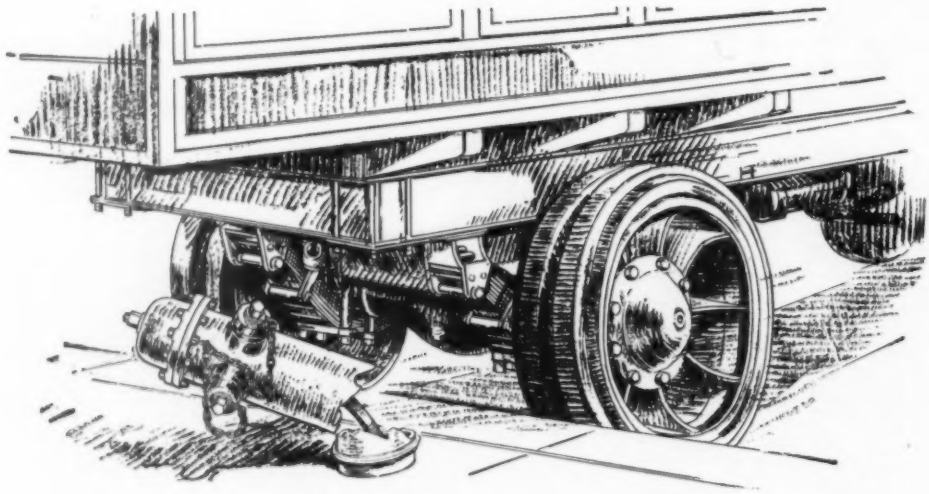

# Darlings Can't Prevent Collisions But They Do Prevent Floods

It is possible to break a Darling barrel — but it's so heavy and so substantial that it isn't often done. But on those rare occasions when such a thing does happen, a Darling won't cause a young flood. It isn't built that way.

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Write now for the Darling catalog and have it on hand when you next take up the question of Fire Hydrants.

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Houston

# DARLING
## FIRE HYDRANTS

# The new Foamite Foam Generator

**A compact portable unit which produces a larger-sized stream of foam for extinguishing extra-hazardous fires as well as ordinary fires.**

The mechanical design of the *Foamite* Foam Generator makes it not only a highly efficient producer of foam when set up, but also an extremely convenient appliance to carry on motor fire apparatus.
As shown above, the inverted hopper can be held by spring clips to a metal box that contains the rest of the equipment. The box fits any running board—held firmly in place. Arrived at the scene of fire, it takes only a few minutes to set up the Generator and start operation.

EXPERIENCE has shown that high-grade foam, properly applied, is the only extinguishing agent capable of controlling extra-hazardous fires. For this reason more than 900 Fire Departments are equipped with *Foamite* Hand Extinguishers or *Foamite* 40-gallon tanks.

Now another highly efficient foam-producing unit is available—the *Foamite* Foam Generator.

Connected into any hose line, this device produces a large, steady stream of foam by the automatically regulated mixture of Foam Generator Powder and flowing water. The quantity of foam is limited only by the supply of powder and water.

Write for complete description and prices.

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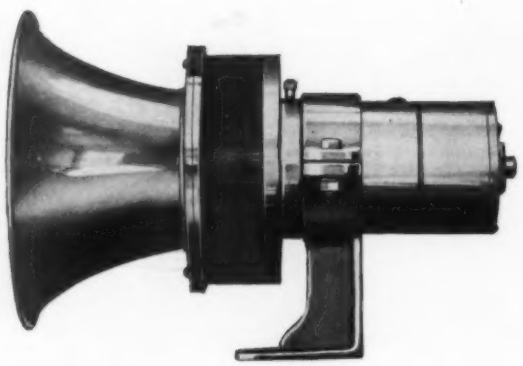
*Against Fire*

# C. A. M.

## *The Greatest of All Fire Apparatus Sirens*



TEST after test in actual fire department service has easily proven the superiority of the C. A. M. siren for fire apparatus.

Once you hear the sharp command—the distinctive, penetrating, far-reaching sound of the C. A. M. siren, you'll agree that it has no equal as a warning signal to clear the way for fire apparatus.

The C. A. M. is a *quality* siren—sturdily made of the finest materials obtainable. It is *unconditionally guaranteed.*

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**C. A. M. Manufacturing Company**

**802 Humboldt Bank Building, San Francisco, California**

*(Distributed by leading fire apparatus manufacturers and fire department supply dealers.)*

# Aero A. D. T. Automatic Fire Alarm System Safeguards Every Type of Structure

Necessity and modern science are responsible for the production of this effective and reliable automatic fire alarm. Based on the infallible natural law that air expands when heated, the air tubes of the Aero System constitute a fire detecting medium thoroughly effective and reliable. No fire can burn for a moment without operating this ever vigilant automatic system.

Quick fire detection is fire prevention. The instant flames break out, pressure accumulates in the small copper tubing due to the air expanding. This pressure is instantly transferred to diaphragms which close electric contacts, automatically sending the fire alarm to our Central Office from whence it is immediately transmitted to the Fire Department.

Aero A. D. T. fires are little fires, causing no life or property loss; no interruption in the regular conduct of business; the filling of customers' orders and the continuous flow of production so necessary to industrial profits.

Aero is part of the A. D. T. System of fire protection services. Operated in 116 cities throughout the United States.

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## American District Telegraph Co.

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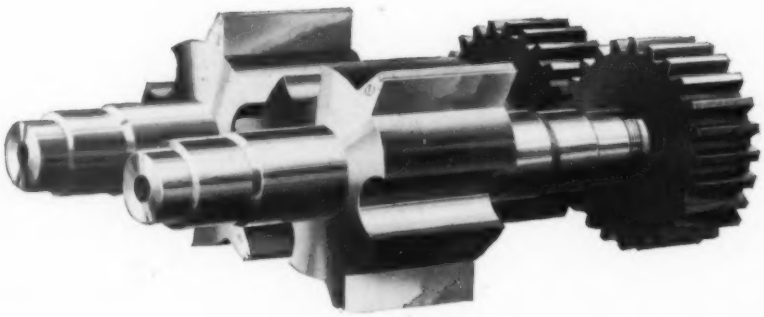

# What An Important Patent Means to The Waterous Rotary Pump

The patent covers the peculiar shape of the Waterous Pump Rotor and means that regardless of the pressure pumped against and no matter how old or worn the pump, there can be no loaded sliding surfaces or wear on the pump rotors.

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**Agents in Principal Cities**

**Established 1886**

Waterous Dependable

# FIRE ENGINEERING

(A Consolidation of FIRE AND WATER ENGINEERING and THE FIRE ENGINEER)

*The Journal of the Fire Protection Profession*

VOLUME LXXX MARCH 23, 1927 NUMBER 6


# Efficient Records for Fire Alarm Systems

## How the New Haven, Conn., Fire Alarm Telegraph Superintendent Keeps Careful Note of His System—Forms Covering All Operations

By EDWIN P. COCHRAN, Superintendent of Fire Alarm Telegraph, New Haven, Conn.

*THE necessity for efficient and carefully kept records of the city fire alarm system is becoming recognized in all modern fire departments. One of the most complete, well arranged and comprehensive systems of this kind in use in the New Haven, Conn., Fire Department, and the superintendent of that city's fire alarm describes it fully in the following article:*

In describing the record keeping system in use in New Haven, Conn., my hope is that it may be of some service to others who may be arranging similar data.

To begin with the day book, this is practically the same arrangement as is found in all fire alarm offices. It contains, chronologically, the various matters that occur in relation to the service. The fire alarms are entered in red ink.

### Master and Record Cards for Each Box

Each fire alarm box has a master card (Fig. 1) on which is entered the number of the box, its location, time, date of installation, dates of painting, etc. This card printed on white bristol board, 7¾ inches wide by 5 inches deep. It is printed in black and ruled in red and blue. The reverse of this card is occupied by two forms. Three quarters are devoted to "Inspected and Tested" with columns for "Date," "Inspector" and "Conditions," and a quarter to "Pulled for Fire," with columns for "Date" and "Remarks."

Back of each master card is filed a record card (Fig. 2), on which are entered the tests and fires of that particular box. This is the same size as Fig. 1, but is ruled only in blue. It constitutes, with Fig. 1, a complete history of each fire alarm box.

A complete record of fire alarms for the month are shown on the next three forms. On Fig. 3 the assembled record of box alarms is kept. It is of the same size and general appearance of the previous two cards, ruled in blue only. Fig. 4 shows the still alarms and Fig. 5 the A. D. T. tests and fires for the month. All of these cards are of the same size, printed in black on white board.

### Report Sheet for Each Fire

Fig. 6 shows a report sheet. This is for use primarily for information to the fire marshal and the news-

| Box No. | Location | | Circuit |
|---|---|---|---|
| Kind | | Time | Sec. |
| Adjacent Boxes | | | |
| Nearest Telephones | | | |
| Outer Case Grounded | Insulating Joint | Union | |
| Auxiliary Attachment | Number of Stations | | |
| Door | Lock | Painted | |
| Support | | | |
| Red Light | Gong | | |
| Installed | | | |
| Remarks | | | |

Fig. 1. Master Card for Each Box

| INSPECTIONS & TESTS. | | | | |
|---|---|---|---|---|
| DATE | INSPECTOR | CONDITION | FIRES | REMARKS |
| | | | | |
| | | | | |
| | | | | |
| | | | | |
| | | | | |
| | | | | |

Fig. 2. Record Card for Each Box

Box Alarms from to 1927.

| BOX | DATE | TIME | OPERATOR | BOX | DATE | TIME | OPERATOR |
|---|---|---|---|---|---|---|---|
| | | | | | | | |
| | | | | | | | |
| | | | | | | | |
| | | | | | | | |
| | | | | | | | |
| | | | | | | | |

Fig. 3. Assembled Record of Box Alarms

Still Alarms from to 1927.

| DATE | TIME | LOCATION | CO | OPERATOR | T. M. |
|---|---|---|---|---|---|
| | | | | | |
| | | | | | |
| | | | | | |
| | | | | | |
| | | | | | |
| | | | | | |

Fig. 4. Assembled Record of Still Alarms

papers, and is made out for each fire. It is printed in black in bold type on a white sheet 5½ inches wide by 8½ inches deep. If the alarm is a box, the word "Still" is crossed off, and if a still, the word "Box" is cancelled.

### Monthly Report to the Chief

At the end of each month a report is made out for the chief. This shows the number of box alarms received during the month and their classification; the number transmitted and the number that were followed by stills for the same fire. The stills are classified in the same way. The alarms for the previous months are shown, and the total alarms to date. The data of the number of boxes tested and the number found to be correct is given; also for the A. D. T. service. Open circuits, telephone toll calls and keyguard glasses broken are also indicated, and any data that is of value to the chief is included. This form is shown in Fig. 7. It is printed in black on a white sheet 8½ by 11 inches.

### Trouble Slips

Reports of line changes to be made, received from the telephone or illuminating companies, as well as notices of trouble with the fire alarm apparatus or in-

(*Continued on page 280*)

A. D. T. TESTS & FIRES from to 1927.

| DATE | BOX | TEST | FIRE * | REMARKS |
|---|---|---|---|---|
| | | | | |
| | | | | |
| | | | | |
| | | | | |
| | | | | |
| | | | | |

Fig. 5. Record of A. D. T. Tests and Fires

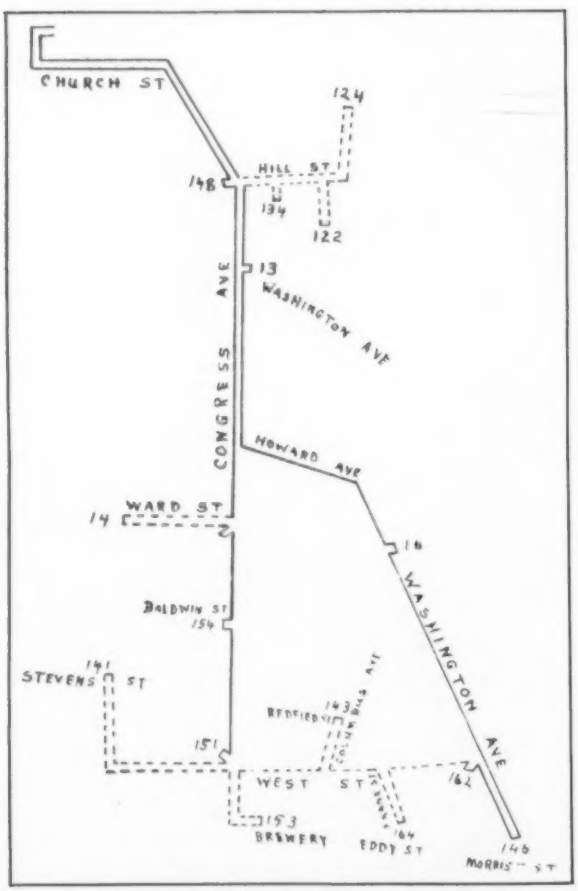



Fig. 13. Sheet from Loose Leaf Circuit Book for the Location of Trouble

**FIRE INFORMATION**

Number
Date
Time
Box
Still
Company
Location
Owner
Occupant
Kind of Building
Floor
Cause
Damage
Other Details

OPERATOR

Fig. 6. Report Sheet for Each Fire

**DEPARTMENT OF FIRE SERVICE**
**NEW HAVEN, CONN.**

Report of Operating Room for the Month of .....192..

**BOX ALARMS THIS MONTH**

| | |
|---|---|
| 1st ALARMS | TRANSMITTED |
| 2nd ALARMS | FOLLOWED BY STILL |
| 3rd ALARMS | |
| GEN. ALARMS | |
| TOTAL | |

**STILL ALARMS THIS MONTH**

| | |
|---|---|
| TELEPHONE | TRANSMITTED |
| MESSENGER | FOLLOWED BY BOX |
| A. D. T. | |
| AUXILIARY | |
| TOTAL | |

**BROUGHT FORWARD FROM PREVIOUS MONTH**

| | |
|---|---|
| TOTAL BOX ALARMS | TOTAL STILL ALARMS |
| 1st AARMS | TELEPHONE |
| 2nd ALARMS | MESSENGER |
| 3rd ALARMS | A. D. T. |
| GEN. ALARMS | AUXILIARY |

**TOTAL ALARMS TO DATE, INCLUDING THIS MONTH**

| | |
|---|---|
| BOX | STILL |
| | TELEPHONE |
| | MESSENGER |
| | A. D. T. |
| | AUXILIARY |

BOXES TESTED THIS MONTH TESTS O. K.

A. D. T. TESTS THIS MONTH TESTS O. K.

OPEN CIRCUITS CAUSED BY TOTAL

TOLL LINE TELEPHONE CALLS

KEYGUARD GLASSES BROKEN
FOUND BROKEN, BY INSPECTOR
REPORTED BROKEN, BY TELEPHONE

DAY OPERATORS FOR MONTH

Fig. 7. Monthly Report to the Fire Chief

# A Big Fire and a Small Department

## Garages With Lumber Yards and Frame Buildings Make a Dangerous Blaze for Eastern City—Entire Department in Operation

MORE than anything else, the fire described in this article of the series on administration emphasizes the terrific fire hazard produced through unrestricted building and lenient fire ordinances.

The property involved in this fire is shown in the sketch herewith.

A quick survey of the various structures, and their occupancies, will show the size of the problem the department in this city faced in handling this fire, which had secured a good start upon being reported.

### The Property Involved

The public garage in which the fire started was of one-story brick construction with wooden roof, and covered with tar and gravel. Rising above this garage, and directly adjacent to it was a five-story brick and joist constructed building, the first floor of which was used as a hardware store. The second floor was utilized as a dance hall and the third, fourth and fifth floors, as lodge rooms.

Directly behind the public garage was a lumber storage shed of old construction and very flimsy. This shed was open in the center from the ground to the roof, the finished lumber being piled in racks in such a way that it could be removed from any of the racks on either floor by using a ladder in the center of the building.

The rear end of the lumber shed, facing the public garage, was not only open at many points by cracks but there was a large open window facing the rear of the garage as well.

Alongside of the lumber shed was a number of piles of lumber, stacked possibly 15 feet high.

Directly behind these were brick dwellings.

To the north of the lumber piles were a couple of frame dwellings, and a large two-story frame machine shop in bad state of repair. This shop had been used for many years and the floors were thoroughly soaked with grease.

On the north end of this second block was an automobile showroom of two stories in height and of brick and joist construction and three two-story brick stores one of which was vacant and the others occupied as a restaurant, and wall paper and paint stores.

Directly north of the five-story lodge building were two one-story brick stores, one used as a printing shop and the other as a lunch room, while further to the north on the corner of Wilbur Street and Atlantic Avenue was a modern moving picture theatre of three stories in height, brick and concrete construction. Alongside of this theatre was a two-story brick store occupied as a general merchandise store.

### The Fire Department

The department in the city in which this fire occurred consists of 4 engine companies, all equipped with motor fire apparatus, 4 hose companies each equipped with combination chemical and hose apparatus, and two truck companies.

In addition one tractor drawn steamer was held in reserve at headquarters and called only by special call.

The response to alarms is as follows: First alarm, Engine Co. No. 1, Hose Cos. Nos. 1 and 2 and Truck Co. No. 1.

Second alarm, Engine Co. No. 2, Hose Co. No. 3 and Truck Co. No. 2.

Third alarm, Engine Cos. Nos. 3 and 4, and Hose Co. No. 4.

Water supply in the vicinity of the fire was excellent, all hydrants being attached to mains 10 inches in diameter or larger.

Water pressure at all times, even during the height of the fire when there was a great draught on the system, was around 8 pounds.

The personnel of the department was somewhat light, only five men responding with each engine company and three men with each truck company; three men also responded with each hose company.

At the time the fire occurred, wind was blowing from the southeast at about 30 miles an hour. Weather was mild.

### The Fire

Around 3 o'clock in the morning two men on night duty at the public garage were repairing the carburetor on one of the cars which has just been run into the garage. One of the men was removing the carburetor which was leaking badly while the other was holding a light. A considerable quantity of gasoline had dripped down onto the floor beneath the car while the men were at work. Through some unaccountable means the gasoline fumes around the engine ignited, setting fire to the clothing of both men. In their pain and excitement they fled from the garage. In the meantime the fire spread quickly. There being no one else in the garage the fire was permitted to gain in intensity until the flames were shooting out the door at the front of the garage when the fire was noticed by a passerby a block away. He immediately investigated and transmitted an alarm.

A first alarm assignment responded, including Engine Co. No. 1, Hose Cos. Nos. 1 and 2 and Truck Co. No. 1.

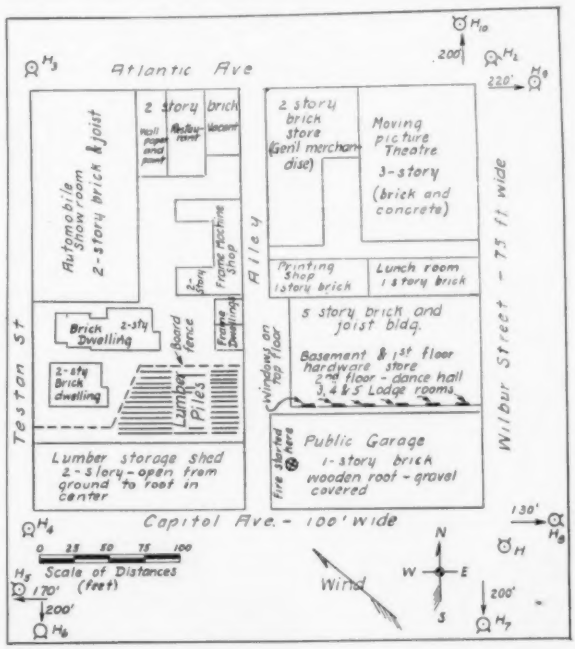
When this apparatus reached the garage the fire was already through the roof and sweeping up the face of the 5-story building adjoining.

Wind was carrying the heat and smoke of the fire also toward the lumber piled in the rear.

### How the Fire Was Fought

The captain in charge of the first company due, noting the seriousness of the situation, immediately transmitted a second alarm.

Lines were placed in service as follows: Engine Co. No. 1


Atlantic Ave
2 story brick
2 story brick store (Genl merchandise)
Moving Picture Theatre 3-story (brick and concrete)
Automobile Showroom 2-story brick & joist
Alley
Printing Shop 1 story brick
Lunch room 1 story brick
Brick 2-sty Dwelling
Board fence
Frame Dwellings
2-sty Frame Machine Shop
5 story brick and joist bldg.
Basement & 1st floor hardware store
2nd floor - dance hall
3, 4 & 5 Lodge rooms
Windows on top floor
2-sty Brick dwelling
Lumber Piles
Lumber storage shed 2-story - open from ground to roof in center
Public Garage 1-story brick wooden roof - gravel covered
Fire Started Here
Teaston St
Wilbur Street - 75 ft wide
Capitol Ave. - 100' Wide
Scale of Distances (Feet)
Wind
N
W
E
S

was placed at hydrant No. 1 and a single line stretched into the garage. The line endeavored to kill the body of the fire in the garage but made little headway. Subsequently a second line was also stretched from Engine No. 1 at hydrant No. 1, this second line operating through the entrance of the garage on Capitol Avenue.

Hose Co. No. 1 was stationed at hydrant No. 4 and a single line laid to the rear of the garage and an attempt made to hold the fire from spreading to the lumber piles across the alley. The heat of the fire from the garage was so intense that the men could not enter the alley but contented themselves with operating at the Capitol Avenue entrance to the alley. Pressure was not sufficient to cover the lumber piles.

Hose Co. No. 2 was placed at hydrant No. 8 and a single line stretched to the Wilbur Street entrance of the garage to assist the two lines already in operation at this point. A 1¼-inch tip was used on this last line, but the pressure was not sufficient to cover the exposed windows of the 5-story building adjoining the public garage, with a result that this line was utilized only in fighting fire in the garage.

Members of the truck company were assigned to assist Engine Co. No. 1 in getting lines in operation and helping in shifting the lines when necessary.

Upon the arrival of the second alarm assignment, the chief who responded with this alarm, noting the dangerous situation, transmitted a third alarm, which brought out in addition to the apparatus on the first two alarms, Engine Cos. Nos. 3 and 4 and Hose Co. No. 4.

### Assignment of Second Alarm Apparatus

The assignment of lines from the second alarm was as follows:

Engine Co. No. 2 at hydrant No. 5, and a single line stretched to the rear of the lumber yard. This line was brought up as close as the heat from the garage permitted and was operating for a few minutes when the lumber piles, which had become ignited, made the position untenantable and the line was forced to retreat.

It subsequently operated on the lumber shed in an endeavor to check the fire from spreading.

Hose Co. No. 3 was stationed at hydrant No. 3 and a single line stretched along Testan Street to the rear of the brick dwellings. This line endeavored to check the fire in the lumber piles but it made little headway on account of the heat of the lumber fire being driven directly toward them. Nevertheless they established a position until forced to retreat by the spreading fire.

Truck Co. No. 2 was ordered to assist Engine Co. No. 2 to lay a second line and this line was brought up beside of the lumber storage shed and for a while kept fire from entering this building.

Before the third alarm assignment arrived, however, fire had entered the lumber shed and from then on gained in intensity.

Engine Co. No. 3 was placed at hydrant No. 7 and a single line stretched along Wilbur Street to cover the 5-story building adjacent to the garage. A 1¼-inch tip was used and fairly satisfactory work had been done, but apparently too late, for it was shortly afterward discovered that fire had entered the top floor of the 5-story brick building and was making considerable headway.

This line was then sent up a ladder to the top floor of the 5-story building and operated at this point until forced to withdraw by the increasing intensity of the fire on this floor. Engine Co. No. 4 was stationed at hydrant No. 9 and a single line stretched up the alley from Atlantic Avenue to a point alongside the frame machine shop. This line operated for some time in this location but was eventually forced to withdraw when fire gained greater headway in the 5-story building adjacent to the public garage.

Hose Co. No. 6 stretched in a second line from Engine Co. No. 4 and took its position along with the other line in the alley.

The spare steamer held in reserve at headquarters was not called, for this was retained to answer any alarms which might come in from other parts of the city.

The fire continued to spread, despite the efforts of the department and it was not long until all 5 floors of the 5-story brick lodge building were ablaze. The lumber piles and the lumber storage sheds were soon fully ablaze.

Fire spread to the two brick buildings at the rear of the lumber piles and eventually to the frame machine shop. It then jumped across the court and entered the automobile show room on the corner of Atlantic Avenue and Testan Street, finally leaving this and taking the three brick stores in a row on Atlantic Avenue, adjacent to the automobile show room.

As the fire continued to increase in intensity the department saw that it would be impossible to hold the fire at any point within the second block so all attention was directed toward holding it from entering the theatre and two-story general store.

In this the department was successful. Fire was held from crossing any of the streets except the alley. The moving picture theatre and the two-story brick building alongside were saved.

All other buildings in the two blocks, with the exception of the lunch room which was partly damaged, were completely destroyed.

The Editor's ideas on handling this fire will be given in the next issue of this journal.

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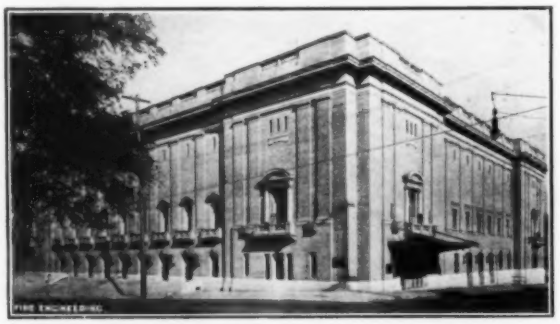
**Firemen Killed and Injured in Chicago Explosion**—One fireman was killed and ten seriously injured in an explosion that occurred while fighting a fire in the Daigger Chemical Company in Chicago, Ill. Firemen collapsed as they sought to escape from the gas-filled basement.

**Woodhouse Manufacturing Co. to Move**—The building now occupied by the Woodhouse Manufacturing Company will be taken over for the New York City subway construction. On or about April 1, this company will move to 156 Chambers street, New York city, where they will continue to serve their many customers.

## READY TO ASSIGN EXHIBIT SPACE FOR I. A. F. C. CONVENTION

**Convention Meetings and Exhibits to be in Same Building—Commodious Exhibit Hall—Freight Arrangements for Exhibitors**

Chief Albert Herring, of Murphysboro, Ill., Chairman of the Exhibit Committee for the Portland convention of the International Association of Fire Chiefs, has sent out letters to the various manufacturers advising them that applications will now be received for booth space in Exhibition Building.



**The Municipal Auditorium, Portland, Ore.**

Both the exhibits and the meetings of the 55th annual convention of the International Association of Fire Chiefs will be held in this building August 9 to 12.

Space will be alloted in the order that the contracts are received.

Exhibitors are fortunate this year in having the convention and the display space in the same building. Very satisfactory arrangements have been made by the exhibits committee for the shipment of display material to Portland, Ore. The Chicago, Burlington and Quincy Railroad, and the Northern Pacific Railroad will have a special freight train leaving

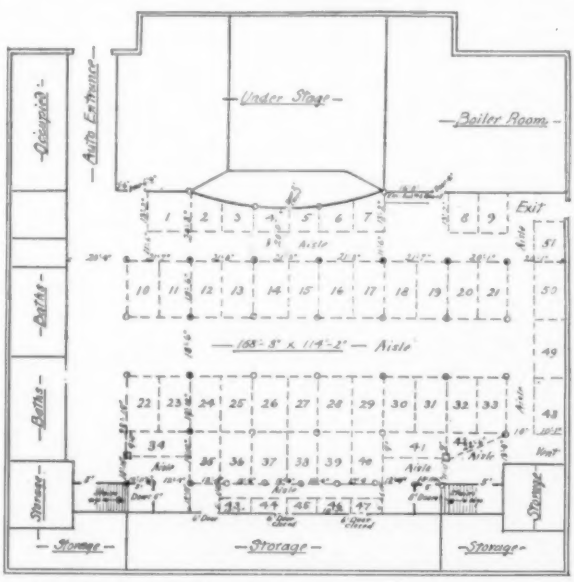



**Diagram of Exhibit Space in the Basement of The Auditorium**

Chicago for the convention city. This train will leave Sunday, July 24, from Chicago, and will arrive in Portland on Monday morning, August 1. Chief Herring will notify the exhibitors as to the manner in which to mark the freight so that it will be routed on the special train.

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**Avis, Pa., Purchases Pumper**—Avis, Pa., has purchased a Seagrave pumper at a cost of $8,750.

# Theatre Safety—How It Can Be Accomplished

## Buildings Must Be of the Most Fire Resistive Materials Available—Plenty of Exits Must Be Provided—Green Lights for Exit*

*THE following article, dealing in a practical way with the question of rendering safe theatres and other places of amusement, has been prepared especially for* FIRE ENGINEERING *by the Engineers of the National Board of Fire Underwriters:*

Regardless of Mr. Webster's definition of a theatre, the Building Code recommended by The National Board of Fire Underwriters states that it is "any building or part of a building designed or used for theatrical or operatic purposes, with accommodations for an audience of more than three hundred persons and having a permanent stage upon which movable

Fire in a Winnipeg, Manitoba, Theatre. Note Particularly the Interior Construction

scenery and theartical appliances are employed; including also moving picture theatres, either with or without a stage, having a capacity as above stated."

It is obvious that theatres should be constructed of the most fire resistive materials available and that every building in this class should have ample exits and aisles based on the capacity of the house, so that there will be means for safe and prompt egress in case of fire or other emergency. A fire-retardant curtain, smoke sealed and so arranged that it will lower automatically in case of fire should be provided.

There should be, too, proper fire extinguishing equipment at hand with conveniently placed hose lines attached to outlets connected with adequate water supply. An automatic, wet-pipe sprinkler system protecting every foot of the stage and other parts of the structure, except the auditorium, should also be installed. Over the stage there should be automatic ventilators equal in size to not less than ten per cent. of the stage area. Employees should be drilled to act promptly and intelligently in case of fire or other emergency.

### The Danger of Stampedes and Panics

Several fires of recent occurence call attention once again to the perils that may beset those who attend the theatre. In practically all cities of importance, regulations covering theatre construction and maintenance are enforced with a thoroughness not found in other occupancies; nevertheless, blazes are still too common, and stampedes continue to reap a toll of lives.

In the fires that have occurred in buildings where large gatherings have been present, the ensuing panics have been responsible for most of the recorded deaths and injuries. Even a blaze intrinsically unimportant may be sufficient to change a well-behaved audience into a struggling, wild-eyed mob, fighting to escape into the open and trampling the weaker members of the audience under foot. Consequently, one of the first considerations in building a place of public assembly is provision for ample exit facilities.

### Necessity for Ample Exit Facilities

The Building Code says that the combined width of the entrance for each floor and likewise the stairways, should provide one foot of width for each twenty persons to be accommodated on each level. Considering the probability of unfavorable conditions due to a panic, or some other cause, the Code holds that the width of the entrance and exit stairs should be based on the assumption that two-thirds of the audience may pass out at either side of the auditorium.

It is specified that the width of entrance stairways ought to be at least 50% of the total stairway capacity on the basis noted. To encourage the audience to divide and thus offset, in part at least, the instinctive tendency to escape by way of the most familiar entrance, the aggregate width of exit doorways opening from each gallery should be, as a minimum, 60% wider than the exit stairways to which they lead.

There should be at least two emergency exits in each side wall of the auditorium, on all tiers, the exits leading into open courts or streets, and each provided with approved fire doors. The emergency exit doorways should not be less than 44 inches wide; all others must be at least five feet. Of course all entrance and exit doors should open outward and be hung in such a manner as not to obstruct any part of the required width of a doorway, passage or stairway. The fastenings of the doors must be of a type which can be readily opened from the inside, at all times, without the use of keys, or the need of special knowledge or effort; the use of draw bolts is prohibited. Exits should be marked with clean cut letters not less than six inches high, or with illuminated signs having letters and numbers of the same height.

### Green Exit Lights Advocated

The Code urges the use of green exit lights, saying: "It has been customary to designate an exit by a red light, but state and national safety organizations have adopted green as the standard color to indicate safety, and red to signify danger. It is therefore consistent that exit signs, which betoken safety, should be marked by green lights."

Such practice, it should be mentioned, is now recommended by the Committee on Exits of the American Engineering Standards Committee.

False doors and windows are prohibited, and it is stipulated by the Code that mirrors shall not be placed so as to give the appearance of doorways, exits or passageways.

### Exit Stairways Should be Enclosed

All exit stairways from the auditorium (except those leading to the first gallery, which may be open on one side), should be enclosed with walls of brick, or other fire resistive material, in the stories through which they pass.

Emergency exit stairways from each gallery are best enclosed in smoke-proof towers, but may be of an approved form of open air stairway, with a minimum width of four feet. An exception to this is the smoke-proof tower stairway, which may

New York Theatre Badly Scorched by Fire Next Door

* Prepared by the Engineers of the National Board of Fire Underwriters.

be 15% less in width if there are no openings except to outside balconies and to the court grade .

### Independent Exits from Stage and Dressing Rooms

From the stage section there should be at least two independent exits with direct outlet at the court or street grades for the service of the stage and floors below. They may also serve as entrances but should be on opposite sides of the stage.

Each tier of dressing rooms should have an independent emergency exit leading directly to an open stairway or to a court or street, ladder fire escapes being prohibited. Fly galleries should also be provided with adequate means of exit.

In determining the capacity of a theatre, it is figured that it should be based on the actual number of seats with an allowance of three square feet per person for all parts of the building where "standing room" may be provided. These measurements are exclusive of aisles, passageways and lobbies.

### Fire Resistive Walls and Protected Openings

Interior fire resistive walls or partitions should be used to separate the auditorium from the entrance vestibule and from any communicating room or rooms, as well as from lobbies, corridors and refreshment or other rooms forming part of the theatre.

Openings in all walls should be protected by approved fire doors or by fire windows for lesser exposure. Floor surfaces should be of concrete or other incombustible material.

The best grade of construction eliminates the use of wood trim, wood floors and combustible doors, but permits the construction of a wooden sounding-board over the orchestra pit if it extends back to and below the overhang of the stage, provided that it is properly safeguarded by abutting fireproof construction.

For the motion picture theatre, additional requirements must be met, including the enclosure of projection machines.

The Code also takes into consideration, of course, seating capacities, dimensions of aisles and cross aisles and other important points, the details of which need not be presented in this paper.

### Theatres Safer Today Than Heretofore

It may be said that since the Iroquois Theatre holocaust in 1903, in which 581 persons were killed and 250 injured, regulations governing facilities for prompt egress, the flame proofing of scenery and other important factors, including regular fire department inspection and supervision, have been rigid, so that despite recent occurrences, the theatres and other places of public assembly are, on the whole, today far safer from fire than they were a comparatively few years ago.

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## ALBERT E. GUINNESS DEAD AFTER APPENDIX OPERATION

**Was President of Uniformed Firemen's Association of Greater New York—Comr. Dorman and 2,000 Firemen Attend Funeral**

FIREMAN Albert E. Guinness of H. & L. Co., 118 New York Fire Department, president of the Uniformed Firemen's Association, the largest body of organized firemen in this country, died on Friday evening, March 11th, from a complication of diseases induced by a gangrenous appendix, which was not discovered until he had been operated on. He had been ill but five days.

Guinness's funeral on Monday, March 14th, was the occasion for the largest demonstration in honor of a fireman that has been witnessed in New York in many years. Upward of 2,000 members of the New York Department, among them a substantial number of officers who as blueshirts had served with him, attended the services.

Fire Commissioner John J. Dorman led the cortege. He was flanked on either side by Deputy Chief of Department John Davin, representing the uniformed force. Dr. Harry M. Archer and Honorary Deputy Chief W. W. Cohen. The band of the New York Fire Department led the way.

The board of officers of the International Fire Fighters Association was in line as was a detachment of the New York Police Department, led by the officers of the Patrolmen's Benevolent Association.

Following the funeral service in the Hanson Place Methodist Episcopal church, close by the Long Island Railroad terminal at Flatbush and Atlantic avenues, Brooklyn, the interment was in Greenwood cemetery, where a squad of Spanish-American war veterans fired a volley over his grave and sounded taps.

Guinness, a veteran of the Spanish-American war, was nonetheless a bitter opponent of veteran's preference and often took public stands against legislation which would have benefited the war veteran to the disadvantage of the fireman or the policeman who did not have the oppotunity or the permission to get a leave of absence to go to war. Although such legislation would have benefited him personally he nevertheless remained loyal to his comrades and sacrificed his own possible advancement.

Fireman Guinness was fifty years of age. He was a machinists' helper as a young man. After the Spanish-American war he became a fireman and was appointed twenty-two years ago in the same company of which he was a member at the time of his demise.

His career was a stormy one. His position at the head of the Uniformed Firemen's Association made it so. He was the first and thus far the only president of that organization, comprising most of the firemen in the New York Department. Guinness once defied former Mayor John F. Hylan to take the beds out of the fire engine houses, when Hylan facetiously asked him a question as to how much time firemen spent in bed and how much on actual fire duty.

Guinness as head of the firemen's association, did a most extraordinary thing about three years ago, when he led a delegation of firemen to the City Hall to petition the Board of Estimate for an increase in salary for Fire Chief John Kenlon. This performance was repeated twice annually thereafter, and strangely enough, the public announcement of the granting of Kenlon's salary increase from $10,000 to $12,500 a year was made on the day that Guinness was being borne to his grave. He had died without the knowledge that one of the missions for which he labored had been successful in the hour of his end.

**Tribute Paid to Memory of Leader of New York Firemen**

An impressive cortege composed of more than two thousand firemen from the New York Fire Department formed from the Hanson Place Methodist Church in Brooklyn. The photo shows the procession a block away from the church as it passed the Long Island Railroad terminal in Brooklyn.

Although a leader who was somewhat regarded as a walking delegate, Guinness was nevertheless a well behaved, obedient and most efficient fireman. His official record in twenty-two years did not have a blemish of any kind. Even when he was transferred to Engine Co. 70 on City Island, many miles away from his fireside in Brooklyn, he traveled the long journey twice daily without a murmur of complaint. He was a martyr to a cause and he knew it, and the association did not fail to recognize his sacrifice.

W. J. DALY.

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**Fulton, Ind., Organizes Fire Department**—A fire department has been organized in Fulton, Ind., and a new fire apparatus purchased.

**Plans Accepted for Clearwater, Fla., Station**—Plans were accepted for the construction of a new fire station in Clearwater, Fla.

**New Fire Stations for Burbank, Cal.**—Bids are being invited for the construction of two new fire stations for Burbank, Cal. One will be a two-story building, while the other will have only one floor.

**El Paso, Tex., Spends Large Amount for Protection**—El Paso, Tex., spends more for fire protection than for any other thing, the city budget revealed. The council appropriated $216,300 for the work, and the next largest appropriation is that made for the police department.

# Modern Fire Alarm Signalling

## Some Essentials in Fire Alarm System Lay-outs; Selection of Materials and Equipment

By E. W. KEIRSTEAD, E. E.

*THIS is the twenty-second of a series of articles on the care, installation and repair of various phases of fire alarm work. In this installment are described some of the essential points which must be considered in the designing of a fire alarm system.*

When a new installation is decided upon, it is a common mistake to take too much of the planning and engineering work for granted. As a modern fire alarm system is mainly of a electrical nature, a great deal of planning and preliminary work must be done before the appropriation is asked. Where a rough survey is made and then the money granted as it is oftentimes the case, the system is left without some important feature. After the money for the system is once allowed, it is very hard to get an extra appropriation to cover minor or major changes from the first design.

It is necessary to first, have a good overhead or underground alarm circuit before the alarm system will function, and as the alarm circuits are the nerves of a fire alarm system they will be here given attention.

There are several types of overhead construction now available, anyone of which are suitable for fire alarm work, If the city will stand for a medium first cost on line construction, it will be well to select good cable suspended by messenger cable. There are several reasons why this type of construction is satisfactory, among which are: ruggedness, compactness, and ability to stand heavy weather (such as sleet, snow and rain storms, gales and high winds, etc.); it takes up less space on a pole and allows easy access to other lines. In this type of construction cable or terminal boxes are used. They allow future additions to the circuit as well as providing numerous testing positions. In article No. 1 of this series, line work was taken up in detail and reference to this issue will give additional information.

Assuming that we are laying out an installation where new circuits are to be installed, the line will have to be located where it will be possible to reach points in all directions from its main branch or trunk. If we will stop and visualize the rapid growth of the city or town in many cases we will be able to install a line that will serve our purpose now and also provide central terminal points for future additions. This will incur additional expense, but in two or three years time it may save an expense several times as great. Remember, it does not cost any more for the construction of a twenty pair cable than for a thirty pair cable except in the cost of the cable itself. When placing cable or open work wiring on the poles, always keep in mind that the better grade of materials you use the longer the life you will obtain from the installation. Lines should be placed on the poles with a reasonable amount of slack, especially on lines that are not suspended in rings.

### The Overhead Circuit

In overhead circuits it is possible to have twelve boxes on one circuit. On underground circuits as many as twenty boxes may be placed on one circuit, though it is better practice to have fewer than these on the circuits so that additional boxes may be added if needed. Provide as many terminal boxes as possible in order to facilitate easy extension of circuits.

Underground circuits as a rule are run in the telephone companies ducts, and in some cases they supply the cable and pull it in and then charge the city a certain rate. Where it is impossible to get this done, a good grade of cable should be obtained and competent workman engaged to pull in the cable and place it in commission. Failure to secure good workmanship may result in later trouble.

### Overhead Construction Materials

A list of the different kinds of materials used in overhead circuit construction is given below:

**Cross arms, from 2 to 10 pin.**—Good quality of pine, cypress, or other kinds of hard wood. Must be as free from knots and flaws as possible.

**Wire suspension brackets.**—Should be of heavy duty type. Must be treated or galvanized to protect them from weather.

**Messenger wire.**—Should be seven or eleven strand wire, galvanized and free from kinks and weak spots. Must all be of equal diameter.

**Wire for exterior work.**—Should be double braid weatherproof, of equal diameter and have a good grade of rubber covering.

**Cables for exterior work.**—Should have a good grade of weatherproof covering in addition to the above for open wire.

**Glass, pins, toe lags, etc.**—Should all be of standard grade and free from flaws.

### Alarm Boxes

In importance second only to circuit wiring are alarm boxes. The boxes should be selected with the greatest of care. According to the Underwriters rules only 12 boxes can be placed on an overhead circuit and 20 on an underground circuit.

According to the best practices, heavily populated districts should have boxes placed at least one to a block. If this is not possible allow boxes to be placed so that they can be readily seen from any position on any street.

The non-interfering, succession box is the best type to use in such a district and this type should be installed in preference to any other. The cost of this box is a little more than others, but will hold its own in any kind of mix ups such as incidental to several boxes being pulled at the same time.

Get as many boxes as is possible to start your installation and keep adding as many as you can every year. It is good practice to get a specified number of boxes allowed in your yearly budget. All special hazards must be well protected, such as public schools, hospitals, public homes, theaters, factories, mills, and any other place where large numbers of people are congregated. It is good practice to have a special box on each of the above mentioned places. A great number of cities are already alloting boxes for this purpose.

Schools and hospitals are taken care of by the city. Private plants or factories may be encouraged to purchase boxes outright and have them installed on the city system if the city cannot provide them. But when these boxes are installed they become a part of the city system and should be serviced by no one but the Fire Alarm Bureau.

Under no condition should you allow a concern to have a box inside a building. The box should be mounted on a pole or standard outside the building.

When boxes are once placed they should not be removed later on as people get a location fixed in their minds and in case of fire run to the place they have been accustomed to seeing a box. If it is removed it will result in confusion.

In arranging a new system decide on a number system and stick to it. For example, if your city has wards or districts, have the first number of the box the same as the district number if possible. This will give a ready indication of the direction of the alarm, and will make it easier to memorize the box list. The second number may stand for the identity of the location, whether public, private, school house or street box, then the second number will give a ready reference to the type or nature of the alarm. The third and fourth numbers, should there be such, will act as the box number.

A lot of planning will be necessary for you to lay out your box locations in the best possible manner. Several things will have to be taken into consideration, including size of the city, distance from one block to another, special hazards, unsettled districts, etc., in order to get the best possible installation.

When receiving boxes from the factory it may be well to give them a test before placing them on the street. It should include: testing of the spring drive for proper driving power for all sixteen rounds, non-interference test, test for sticky doors and hook pulls, and a ground or break down test. Boxes are all carefully and thoroughly tested before they leave the factory, but sometimes they are damaged in transit.

If possible, get a liberal supply of spare boxes and hold them for emergency cases.

It is necessary to have a back board for all boxes that are placed on wooden poles and these can be obtained from a mill in your own city. They may be ordered through the manufacturers of your apparatus, but it is not customary to get them this way.

If you already have boxes for your installation it will be to your advantage to get the new type doors and install them as the extra cost will not be a great deal and the old doors will be taken back by the company that supplies your new doors.

In purchasing boxes get the best, do not consider the cost of the box in this case, as reliability is worth any extra cost incurred.

### Batteries

The subject of batteries is important. The size of the battery racks is dependent on the "amount of battery" it is to carry. We will consider the batteries first.

The batteries used for fire alarm work are, as explained before, of two volts and arranged to be discharged at one tenth of an ampere. There are several reasons why a cell of this type is used, and we must take into consideration the size of the battery when figuring the number required.

A chart is made of the proposed circuits. The gauge and length of the wire being known, it is an easy matter to figure the resistance of the circuits. Beside the resistance of the circuit wiring itself, we must figure in the resistance of all the apparatus that will be cut into the circuit when the whole installation is complete. This will include the resistance of the magnets, of the repeater, gongs, relays, time stamps and registers on the main line; indicators, protectors, and all other auxiliary apparatus in the main line circuits, including the resistance of three or four boxes in order that the line will be able to function should the doors of the boxes be left open.

In order that you may be able to figure up the necessary battery that will be required in your particular system, a test example is given below:

Example: A circuit with the following resistance is to be supplied with battery sufficient to keep it at one tenth of an ampere. The resistance includes: 12 ohms of line wire, 100 ohms for four open boxes, 40 ohms for two six-inch gongs on the main line, 23 ohms for one indicator, 34 ohms for the repeater magnets, 30 ohms for a register, and 100 ohms for the resistances in the storage battery switchboard. The sum of this resistance is 339 ohms for the entire circuit. According to ohms law the pressure required to force a given current through a given resistance is the product of the current times the resistance. In other words:

Volts = Current x Resistance, or Volts = Amperes x Ohms.

We know that we are to have impressed on the line at all times a current of one tenth of an ampere and we desire to find out what voltage will give us this result with a resistance of 339 ohms. Using the above formula we find:

$$\text{Volts} = .1 \times 339 = 33.9 \text{ volts.}$$

We would therefore need 40 volts of battery to keep the line at one tenth of an ampere. This formula may be used for any calculation where the current and resistance are known.

Where the voltage and current are known the following formula is used.

$$\text{Resistance} = \text{Pressure} \div \text{Current, or Ohms} = \frac{\text{Volts}}{\text{Amperes}}$$

In the above case the resistance would be as follows for the given value of voltage and amperage.

$$339 \text{ ohms} = 40 \text{ volts} \div .1 \text{ ampere.}$$

To find the amperage where the voltage and resistance is given, use the following formula:

$$\text{Amperes} = \frac{\text{volts}}{\text{ohms}} = \frac{40}{339} = .1 \text{ ampere}$$

By the use of the formulas and the further use of resistance tables it is possible to get the proper voltage necessary to carry your circuits.

After the necessary battery is decided upon, you can then judge what size rack you will need. It will be well to comunicate with the makers of racks and give them the amount of battery you have and they can then tell you the size of the rack.

When getting a battery rack do not order one with just the bare amount of space on it to accommodate the battery already required as you will no doubt expand your system and will need additional space for more cells as time goes on.

When figuring battery for an installation, arrange to get some additional cells to take care of breakage and for building up new units, as will be necessary from time to time.

## Plans for New England Convention

Plans are going forward for the convention of the New England Association of Fire Chiefs, which will be held this year in Portland, Me., on June 21, 22 and 23.

The Congress Square Hotel has been selected as convention headquarters, and the exhibits of apparatus and accessories will take place in the Exposition Building. It is expected that there will be a large showing of the latest types of motor pumpers and ladder trucks.

The Exhibit Committee is composed of Chief William H. Hawkins, of Haverhill, chairman; Chief Charles Fortin, of Lewiston, Me., and E. H. Milliken, of Boston.

Chief Charles H. French, of Manchester, N. H., president of the New England Fire Chiefs' Association, expects to call a meeting of the Board of Directors in the near future to draw up the program of topics and arrange further details of the convention.

Reservations for hotel accommodations should be made through George F. Cobb, traffic manager of the association, 774 Albany street, Boston, Mass.

Chief John W. O'Hearn, of Watertown, Mass., secretary of the association, reports that much interest is already being manifested and that all indications point to a record attendance at Portland in June.

Chief Oliver T. Sanborn, of Portland, is arranging an attractive entertainment program for the visiting chiefs, and is preparing an illustrated souvenir booklet for the convention.

A list of topics for discussion at the convention was selected at a meeting of the board of directors held in the Elks' Hotel, Boston, Mass., on March 16.

The meeting was attended by Chief Charles H. French, of Manchester, N. H., president; Chief John W. O'Hearn, of Watertown, Mass., secretary-treasurer; Chief William H. Hawkins, of Haverhill, Mass., chairman of the exhibit committee; Chief Oliver T. Sanborn, of Portland, Me.; Chief James E. Smith, of Nashua, N. H.; Chief James M. Casey, of Cambridge, Mass.; George F. Cobb, of Boston, traffic manager; and Harry Belknap, press representative.

It was decided to open the convention in Portland, Me., at 10 a. m. on Tuesday, June 21, with addresses of welcome and the annual memorial service. The afternoon will be devoted to visiting exhibits and the evening to round table discussion.

On Wednesday the morning session will start at 9:30. The afternoon will be devoted to exhibits and demonstrations. On Thursday there will be a business session starting at 9:30 a. m. and ending at noon with the election of officers.

Five major subjects named for discussion and on which papers will be read are "VENTILATION," "FIRE PREVENTION," "TRAFFIC REGULATION," "CONSTRUCTION AND CARE OF TIRES," and "SMOKE EJECTOR MACHINES."

There will be a report of the committee on standardization of fire hose threads and probably a paper on fire alarm record systems. It was voted to invite Chief John Kenlon, of the New York Fire Department, to attend and deliver an address.

It was voted to donate $100 to the Memorial Fund being raised for the benefit of the family of the late Chief Robert Browning, of Central Falls, R. I.

Left—Congress Square Hotel, Portland, Me., Convention Headquarters. Right — Exposition Building Where Exhibits Will be Arranged.

Convention headquarters will be established in the Congress Square Hotel and the exhibits will be held in the Exposition Building. There will be a bus service at frequent intervals between the hotel and the exhibit hall.

Reservations for rooms should be made by writing to George F. Cobb, Traffic Manager, 774 Albany Street, Boston.

The officers of the New England Association of Fire Chiefs are as follows:

President, Chief Charles H. French, Manchester, N. H.; First vice-president, Chief William C. Shepard, Pittsfield, Mass.; Second vice-president, Chief Oliver T. Sanborn, Portland, Me.; Secretary-Treasurer, Chief John W. O'Hearn, Watertown, Mass.; Board of Directors, Chief James E. Smith, Nashua, N. H.; Chief A. J. Cote, Woonsocket, R. I.; and Chief James M. Casey, Cambridge, Mass.; Sergeant-At-Arms, Chief David A. DeCourcey, Winchester, Mass.; State Vice-Presidents, Maine, Chief Charles Fortin, Lewiston; New Hampshire, Chief Arthur W. Spring, Laconia; Vermont, Chief Carl D. Stockwell, Burlington; Massachusetts, Chief Selden R. Allen, Brookline; Rhode Island, Chief Albric Chevalier, Warwick; and Connecticut, Chief George B. Milne, of Rockville.

HARRY BELKNAP.

**Michigan Wants More Money for Forest-Fire Work**—The forestry commission asks for a fund of $857,000 with which to fight forest fires in Michigan. Last year, the state appropriated $500,000 for the work but this amount proved inadequate to carry on the department's activities.

**Chief Towey Active in Lion's Work**—Chief Towey of Newark, N. J., spoke at a meeting of the Lion's Club in the interest of fire prevention. This month is being observed as fire prevention month by the various Lion's clubs throughout the country.

# New Rules of the New York Fire Department

## This Tenth Installment Covers Sections Dealing With Theatre Duty and the Keeping of Records

*FOLLOWING is the tenth installment of the "Rules and Regulations of the Uniformed Force of the Fire Department of the City of New York," just issued by that department, and which are to be published serially in their entirety in* FIRE ENGINEERING. *This book has been compiled and edited by Captain John J. McCarthy, of H. & L. No. 43, detailed in charge of the Division of Public Assembly at Fire Headquarters, who worked under the personal supervision of Chief John Kenlon. This installment includes sections covering Theatre Duty and Records:*

### Theatre Duty

SEC. 249. Absence from theatres or other places of public assembly, or the evasion of any duty required of members detailed to such places shall be considered a very serious offense.

SEC. 250. Members detailed to theatres shall:

1. Report, wearing detail badges, at the theatre to which assigned, one-half hour before the advertised time of each performance.
2. Before entering theatre, ascertain the location of the street fire alarm box nearest to stage door, so as to be prepared to transmit an alarm from the theatre and street boxes in the event of a fire or panic.
3. Upon arriving at the theatre, make an inspection to determine whether all exits are available for immediate use and provided with the signs, numbers and lights required by law.
4. Examine all outside fire escapes, courts and approaches thereto, and see that the management removes all obstructions, particularly ice and snow. Courts shall be properly lighted at night.
5. Examine all automatic fire doors and see that they are unobstructed and in proper working order.
6. Examine pumps, standpipe and sprinkler systems, to determine their condition.
7. Examine the tanks supplying standpipe and sprinkler systems and cause the removal of any accumulations of ice that may be found.
8. Not allow smoking on the stage behind the play setting, nor in dressing rooms, property rooms, locker rooms, carpenter shop, or under stage.

When persons persist in smoking after being requested to stop, the manager shall be notified, and a report of the incident shall be included in the theatre report.

9. Examine skylights; see that they are maintained clear of ice and snow accumulations, and are in proper working order.
10. Cause the asbestos curtain to be raised and lowered before each performance, and lowered at the conclusion.
11. Cause all doors in the proscenium wall to be kept closed during performances.
12. Cause all articles used for the burning of colored fire to be properly cooled before being laid away, and verify the permit granted by the Bureau of Fire Prevention authorizing the use of all flames, colored fire and explosives.
13. Provide pails of water at a convenient point when materials of an explosive or hazardous character are used in a play.
14. Inspect all fire appliances to determine their operative condition and readiness for immediate use. See that they are kept in their proper place and are unobstructed.
15. Inspect all parts of the premises, particularly the stage, wings, traps and flies, and see that there are no accumulations of rubbish, paint pots, old rope, canvas or draperies.
16. Inspect border lights and see that they are properly protected by shields.
17. Hold themselves in readiness to take a position in front of the audience to quiet any uneasiness that may be caused by the sounding of the bells or sirens of passing fire apparatus.
18. Sound one round of the test signal from the special building fire alarm box on stage, and enter in their reports whether or not a reply was received from the office of the telegraph company. In the event of not receiving a reply, notify a telegraph dispatcher of this Department, by telephone, immediately.
19. Inspect the framed instructions bearing a facsimile of the detail badges and include in their reports mention thereof when such are found missing or out of place.
20. During each performance, inspect that part of the theatre in front of the stage.

If they find, in the aisles or passageways, any camp stools, chairs, sofas, or other obstructions, or any person standing, except as allowed by ordinance, or sitting in any aisle or passageway, immediately notify the proprietor or manager of such place of amusement, or any usher, agent or other employee of the proprietor or manager then present, to cause such obstructions to be removed, or cause the person or persons standing or sitting in such aisle or passageway to vacate the same.

If the person or persons so notified shall neglect or refuse to cause such obstruction to be removed forthwith, or cause such person or persons to vacate forthwith said aisle or passageway, the names of witnesses, the part of the law violated, in what manner it was violated, and their action in the matter, shall be noted and included as part of the report. These facts shall be separate and distinct from the routine matter, and shall be presented in an intelligent manner, to the end that the Department will be enabled to enforce the provisions of law.

21. Under no circumstances ask any favors for themselves or others.
22. Remember they are not there to witness the play or talk with those on the stage.
23. Wear the theatre detail badge on the coat during service on theatre detail.
24. Note all violations of law and include such in their report.
25. Upon return to quarters, make a written report giving:

a. Time of leaving quarters.
b. Name and location of place to which detailed.
c. Time on duty.
d. Where stationed.
e. Time of return to quarters.
f. Violation of any law, direction or regulation.
g. Any obstruction to aisles or exits, giving detailed information.
h. All fires, how caused, how and by whom extinguished, and the name of the officer notified in the company district in which the place of amusement is located.
i. Panics or alarms from any cause.
j. The condition of fire alarm box on stage, and of all appliances for preventing or extinguishing fire.
k. Condition of water in tanks.
l. Condition of skylights over stage.
m. Extraordinary circumstances of any nature.

These reports shall be accompanied by a copy of each new issue of programme or bill of the play.

They shall also contain the names and badge numbers of members of the uniformed force who may enter any part of the theatre in uniform during their tour of duty.

Reports shall give the name, rank and theatre detail badge number of members preparing them.

Such reports containing violations or mention of extraordinary occurrences shall be forwarded, through regular channels, to the Chief of Department. All others to be retained at Batallion Headquarters.

SEC. 251. Members detailed to places of public assembly, other than theatres, shall be held responsible for any neglect or failure to comply with the orders or instructions of the officer in charge.

SEC. 252. Officers with companies temporarily out of their respective quarters (at fires, when locating, etc.) shall not neglect to furnish the detail of a member to the place of public assembly assigned to their original company number.

SEC. 253. When assigning members to duty in places of public assembly, officers shall avoid, when possible, the detailing of members not attached to the company.

SEC. 254. Members retailed to that duty shall make inspections of theatres during performances, at irregular times; see if firemen detailed are at their posts and are familiar with conditions in the building. They shall report, by proper and well sustained charges, all delinquencies.

They may recommend additions to appliances, and the correction of anything which, in their opinion, is necessary.

### Records

SEC. 255. Records and assignment cards shall be kept up to date by the making of all corrections and changes promulgated in orders or made necessary in carrying out efficiently the administration of Divisions, Battalions and Companies. Failure to comply with this rule shall be considered a serious offense.

SEC. 256. The falsification of records, the making of misleading entries, or the wilful mutilation of any department record, book, paper or document, shall be treated as a serious offense.

SEC. 257. All communications received and copies of all communications forwarded shall be preserved at the point of final receipt or origination for at least one year.

*(Continued on page 293)*

## Efficient Records for Fire Alarm Systems

*(Continued from page 272)*

struments, received from the engine houses, are entered on trouble slips (Fig. 8). These are kept on a spindle until the work is completed and then the slip is filed, after a brief note has been made on it indicating what has been done.

These slips are typewritten on white paper, 3½ by 4¾ inches, and are perforated for filing.

### Outside Construction Work

A daily record is kept of the outside construction work of the system. This is entered on the card Fig. 9. This is a blue card 8 by 5 inches, printed in black on one side and ruled in red and blue on both sides.

REPAIR AND TROUBLE NOTICES

..... 19

.....

..... 19

Fig. 8. Trouble Slip

TIME AND STOCK REPORT

WORK DATE

| MEN | TIME | STOCK |
|---|---|---|
| | | |
| | | |
| | | |
| | | |
| | | |
| | | |

Fig. 9. Daily Record of Outside Construction Work

### Battery Readings and Ground Tests

Battery readings are recorded hourly for all working circuits, on a large sheet covering the twenty-four hours. This also shows which battery is on the line, A or B, and which is under charge. Fig. 10 illustrates this form. It is 19 by 11¾ inches, printed in black, on white ledger paper, ruled in red and blue. There is a space at the bottom of the sheet for remarks. P. M. includes 12 hours and the second A. M. section runs up to 8.

A similar record covering a week of ground tests taken four times daily, and indicating weather conditions, is shown on Fig. 11. This is 20 inches wide by 12⅛ inches deep, same style as Fig. 10. It is divided into seven sections as shown, and there is also space for "Remarks" at the bottom of the sheet.

### Record of Repairs

Fig. 12 shows the record kept, of each instrument brought into the shop for repairs. It gives the trouble reported and cause found, as well as tests made at the shop showing the current ranges through which the

*(Continued on page 298)*

INSTRUMENTS

| GONG | TAPPER | REGISTER | TRIP | TOWER | |
|---|---|---|---|---|---|
| | | | | | CIRCUIT |
| | | | | | |
| | | | | | |
| | | | | | |
| | | | | | |
| | | | | | |

Fig. 12. Record of Repairs

DEPARTMENT OF FIRE SERVICE

NEW HAVEN, CONN.

8 A M 192 to 8 A. M. 192

BOX CIRCUITS GONG TAPPER

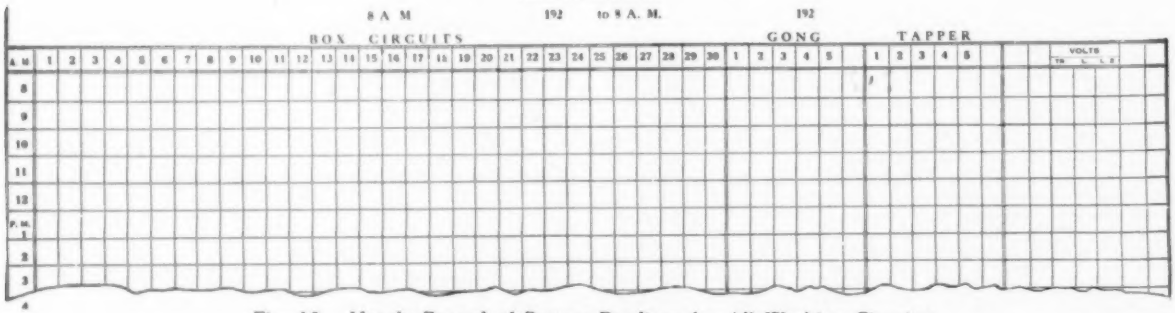

Fig. 10. Hourly Record of Battery Readings for All Working Circuits

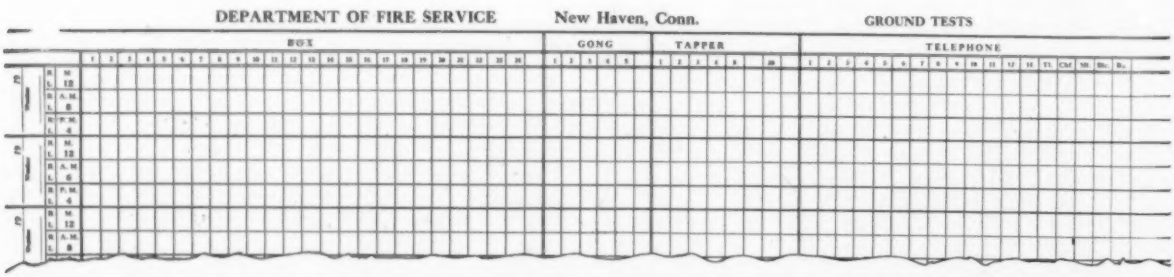


Fig. 11. Record of Ground Tests, Covering a Week, Taken Four Times Daily, and Indicating Weather Conditions

# WITH THE EDITOR

## Fire Department Exhibits

Local expositions, conducted in the home town, such as "Own Your Own Home" and agricultural shows, church and civic association bazaars, and so on, afford splendid opportunities for the fire department to fulfill the double object of making the public better acquainted with its methods and of bringing the subjects of fire protection and prevention to its notice.

Recently the chamber of commerce of Elizabeth, N. J., sponsored an exposition for the promotion of home owning, and the wide awake chief of the city's fire department grasped the opportunity to get closer to the citizens through the medium of a well arranged and attractive fire prevention exhibit.

Such exhibitions and fairs occur at intervals in practically every town that shows any sign of progressiveness. In each such event the fire department may well be represented by an exhibit.

The arrangement of such exhibits need not be either expensive or difficult. A member of the fire department, who is clever with his hands and another who is a good draftsman can get up an excellent display with surprising little material to work upon. This work can be done in off-hours, and such an exhibit, with a few changes, could be used from year to year, without apparently repeating the same features in any two exhibitions.

The effects of such an exhibit, especially if it is announced that it is the product of fire department talent, will be striking and lasting. The attention of the public will be centered upon it and the lessons conveyed will have the advantage of being driven home with a touch of both local interest and local pride.

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## Limiting Fire Apparatus Speed

A tendency becoming apparent in some quarters among safety directors and other responsible city officers, is to place an unreasonable limit upon the speed of the fire apparatus in answering alarms of fire. In one instance the fire apparatus is even required to stop when the red signal is set against traffic at street intersections.

The absurdity of such an order it would hardly seem necessary to point out. But the order not only is absurd—it also contains a large element of danger as well. On the shortest run, there would be at least four or five traffic stops, at each one of which the apparatus would lose from three-quarters to a full minute. Thus at the end of the run, when five minutes may mean the difference between a small blaze and a conflagration, the first alarm apparatus, will have lost this precious five minutes and perhaps more through traffic stops.

On the other hand, when the fire apparatus has the right of way and disregards traffic signals, the traffic officer has heard the warning siren of the approaching engine long before it arrives, and has had ample time to signal private cars to draw to one side and stop, so as to give the fire-fighters plenty of space to pass by.

As to the speed of apparatus in answering an alarm, and the plan to place unwarranted limit upon it, only trouble can follow upon such a scheme. It will, however, probably require some such disaster as the Montreal Theatre blaze, in which a number of children lost their lives in a fire panic, to awaken the authorities to the fallacy and danger of checking the apparatus' speed. If the firemen had arrived five minutes later than they did at the moving picture house, where the children were almost inextricably entangled in a rush for the exits, caused by needless panic, the loss of life may have been ten times greater. This emphasizes, as does practically every fire, the necessity for the prompt arrivals of the fire apparatus. This applies equally as well to the saving of life and of property. If the first alarm apparatus is unduly delayed, the fire will increase in size and may get beyond bounds by the time the fire-fighters arrive.

Prompt answers to alarms and a clear and unobstructed right of way are the best methods of insuring the proper extinguishment of fires.

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## As They Do It In Russia

If any of those members of fire departments who in the past year or so have sought thrills and extra work by setting their own fires, regardless of the loss to property and risk to human life, had lived in Russia, they probably would have thought twice before seeking excitement in just that way. The Bolshevik method of dealing with this class of fire enthusiasts is decidedly strenuous.

Recently a chief and some of his firemen in the Ukraine were highly commended for heroism and good firemanship in their handling of a blaze in their town and for rescuing some unfortunates from the flames. Then it came out that the fire had been set by the men themselves. The fire department head and some of his men were sentenced to the firing squad, and the remainder received from five to ten years in prison in solitary confinement.

While we do not entirely endorse this plan in so far as fire department members are concerned, we heartily recommend it as a sure cure for professional incendiar-

ism. At least, it would make the firebug immune from a second attack of the arson habit.

## How to Increase Fire Company Membership

Here's an idea for volunteer fire departments to increase their membership. Protection of the community is all very well, but why shouldn't the individuals benefitting by it bear their proportionate share of expense? A Minnesota fire company has inserted the following advertisement in the local paper:

NOTICE

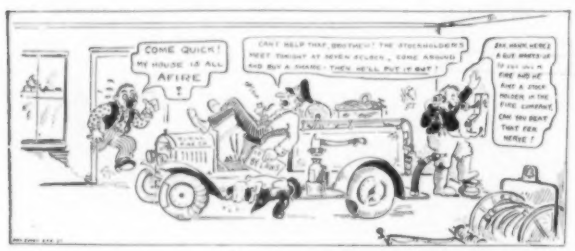
At the annual meeting of the —— Fire Co., it was unanimously voted that no fire calls should be answered except to paid up members of the Company. This is in accordance with the By-Laws of the Fire Co., and has previously been made public. If you wish the protection of this company, buy a share before you have a fire, otherwise do not embarrass the company by calling when you have one, as the drivers have been instructed not to answer such calls.

By order of the —— Fire Co.,

———. —. ———,

Sec.

There seems only one serious drawback to this very exceilent scheme, and that is that the fire in the non-


COME QUICK! MY HOUSE IS ALL AFIRE
CAN'T HELP THAT, BROTHER! THE STOCKHOLDERS MEET TONIGHT AT SEVEN O'CLOCK, COME AROUND AND BUY A SHARE! THEY WILL PUT IT OUT!

The Situation as Our Artist, "Art" Espey, Sees It.

member's residence, if uncontrolled, might communicate to that of a stockholder of the company and even wipe out the whole community. But, anyhow, the apathetic citizen would have been properly punished and that would be a consolation to those who had suffered loss through his stubborn refusal to "come across."

## Fire Chief Ordered Shot

Following an order commending the fire chief and the department of Kiev, Ukraine, (Russia) for heroism and skill in fighting a fire in the Trade Union Club there, a few days later an order was issued for the fire chief and his department to face a firing squad because of arson charges.

Six of the men including the chief will be shot; two were sentenced to ten years' solitary confinement, and the other two must serve five years in prison.

The chief confessed that fearing that he and his men would lose their jobs because of a long period of inactivity, they had started some fires of their own. It was alleged that the fire in the club for which they were commended was started in this way.

**Hartford, Conn., Has Plans for Drill Tower**—Fire commissioners of Hartford, Conn., are considering plans for the erection of a drill tower that is estimated to cost $5,000. The tower will be six stories high.

## Bookings of "The Fire Brigade" Increase

Additional bookings of the "Fire Brigade," the motion picture sponsored by the International Association of Fire Chiefs, are being received daily. The following list contains the additional bookings that have been received since the publication of the lists in the previous issues of FIRE ENGINEERING.

Due to the large number of bookings that are being received for the "Fire Brigade," space does not permit a listing of all the theatres that have booked the motion picture. Instead a listing will be made of the first date at which the Fire Brigade is to be shown in a municipality.

| CITY | THEATRE | DATE |
|---|---|---|
| **Alabama** | | |
| Mobile | Crown | April 2-5 |
| **Arizona** | | |
| Globe | Globe | March 30-April 1 |
| **Arkansas** | | |
| Helena | Jewel | May 13-14 |
| Marked Tree | New Star | April 14-15 |
| Paragold | Majestic | April 4-5 |
| Piggott | Franklin | May 25-26 |
| Pine Bluff | Best | May 13-14 |
| Sheridan | Royol | April 15-16 |
| Springdale | Gem | March 28-29 |
| Wynee | Dixie | Aug. 10-11 |
| **California** | | |
| Burlingame | Peninsula | April 15 |
| Bay Point | Liberty Star | April 7-8 |
| Calistoga | Playhouse | June 5-6 |
| Los Altos | G. & S. | April 27-28 |
| Palo Alto | Stanford | April 4-6 |
| Pinole | Pinole | April 17 |
| Pleasanton | Lincoln | April 24-26 |
| Rio Vista | Vista | April 7-8 |
| Redwood City | Sequola | April 11-12 |
| Reedley | Garden | May 8-9 |
| Rodeo | Rodeo | April 16 |
| San Francisco | Fillmore | April 24-26 |
| San Francisco | Mission | April 24-26 |
| San Mateo | Regent | April 22-23 |
| South San Francisco | Royal | April 18-19 |
| Tulare | Tulalre | April 14-15 changed from April 4-5 |
| Winters | High School | April 16 |
| **Colorado** | | |
| Holly | Isis | March 28-30 |
| Littleton | Palm | April 2-4 |
| Paonia | Gayety | Oct. 10-12 |
| **Connecticut** | | |
| New Britain | Scenic | April 8-9 |
| Norwich | Breed's | April 11-12 |
| Springdale | Springdale | May 5-6 |
| Thomaston | Opera House | May 11 |
| Watertown | Community | May 21 |
| **Delaware** | | |
| Lewes | Auditorium | June 1-2 |
| **Florida** | | |
| Fernandina | Rex | May 31-June 1 |
| Pensacola | Iris-Saenger | March 25-26 |
| Quincy | Enterprise | May 23-24 |
| **Georgia** | | |
| Quitman | Opera House | June 1-2 |
| Thomasville | Grand | May 30-31 |
| **Illinois** .. | | |
| Casey | Lyric | March 30-31 |
| East St. Louis | Majestic | March 30-April 2 |
| Granite City | Washington | March 28-29 |
| **Indiana** | | |
| Bedford | Indiana | May 2-4 |
| Bicknell | Grand | July 3-5 |
| Elwood | Alhambra | May 10-12 |
| Evansville | American | June 19-25 |
| Jeffersonville | Dream | June 13-15 |
| Greensburg | K of P | April 27-29 |
| Mitchell | Orpheum | June 6-7 |
| New Albany | Sherman | June 30-July 1 |
| Orleans | Alhambra | May 2-3 |
| Rushville | Princess | April 18-20 changed from March 28 |
| Salem | Washington | May 5-6 |
| Sullivan | Sherman | June 30-July 1 |
| Washington | Indiana | May 16-18 |
| **Iowa** | | |
| Ashton | Roben | May 29-31 |
| Cherokee | American | May 10-12 |
| Glenwood | Rex | April 13-15 |
| Le Mars | Royal | May 11-12 |
| Marcus | Kay | May 15-17 |
| Missouri Valley | Rialto | April 7-8 |
| Sioux City | Star | May 28-June 4 |
| **Kansas** | | |
| Humboldt | City | June 27-29 |
| Newton | Regent | May 2-4 |
| Washington | Majestic | April 7-9 |
| **Kentucky** | | |
| Lexington | Strand | April 3-6 |

(*Continued on page* 290)

# QUESTIONS AND ANSWERS

Conducted by FRED SHEPPERD, B. Sc., M. E.

*"He that questioneth much shall learn much"*—BACON

**NOTE—Readers of FIRE ENGINEERING are invited to send in questions, which will be answered in the order received. Names are omitted from questions unless otherwise specified.**

## Contents of Standpipe and Hose

*To the Editor:*

The method that C. A. C. of Lynn, Mass., refers to, for determining the capacity of standpipes or hose lines may be the following:

$D \times D \times H \times .0034 =$ gallons contents.

This takes into account both the diameter and height or length in inches.

This same formula may be changed as follows:

Contents = D × D (in inches) × H (in feet) × .0408 = gallons contents.

The latter method simplifies figuring and although the result is not quite as exact, it is close enough for all purposes.

We are finding much useful information in each copy of FIRE ENGINEERING and though the waits are not so long between issues as they used to be, still we are always waiting about a week for the next copy.

Sincerely yours,
CAPT. R. F. TITUS,
Engine Co. No. 27, Seattle Fire Dept., Seattle, Wash.

*Editor's Note:* The formulas given by Capt, Titus are simple and very effective. Contrary to his belief that the second formula is not as accurate as the first, it may be added that this second formula gives precisely the same results as the first, and either one is satisfactory for use.

Where finding the contents in gallons of a length of hose the formula is very useful, and in this case the value of H is the length of the hose either in feet or inches depending on which formula is used.

## Friction Loss in Hose

*To the Editor:*

I have one of your promotional books for firemen and would like to know the rule for finding an answer to a question as follows: What is the friction loss in 300 feet of 2½ inch hose, 1½ inch nozzle, at 400 gallons flow a minute.

Yours respectfully,
D. G. A.

*Answer:* The rule, or formula, for finding friction loss in 2½ inch hose is as follows: Friction loss per 100 feet of 2½ inch hose = $2 \times Q \times Q + Q$.

Where Q is the flow measured in hundreds of gallons per minute.

In the problem you state, the flow being 400 gallons per minute, Q would thus be 4.

Friction loss per 100 feet of 2½ inch hose = $2 \times 4 \times 4 + 4 = 32 + 4 = 36$ pounds

Friction loss in hose varies directly as the length, thus the friction loss in 300 feet of hose would be 3 times as much as what it is in 100 feet. Friction loss in 300 feet of hose then = $3 \times 36$ or 108 pounds.

## Rules of Procedure

*To the Editor:*

You will greatly oblige me if you will answer the following questions in your magazine.

Yours truly,
T. P.

*Answer:* The questions were submitted to Capt. John L. McCarthy of the New York Fire Department who edited their book of rules. The answers to the questions are based upon Chief Kenlon's interpretation concerning the administration of companies placed as described in the questions.

*Question* 1. Is the captain of the engine company in command of the truck company?

*Answer* 1. Yes.

*Question* 2. In the event of charges preferred against a fireman of the hook and ladder company, would the charges, in compliance with Section 132-R and R., 1926, be signed by the captain of the engine company?

*Answer* 2. Yes.

*Question* 3. Which officer, the captain of the engine, or the lieutenant of the truck, is responsible for the equipment of the truck?

*Answer* 3. The captain of the engine company is directly responsible to the chief of department for the truck's equipment. However, the lieutenants of the truck company, in turn, are responsible to the captain of the engine company.

## Carbon Monoxide and Resuscitation

*To the Editor:*

Will you kindly give me a description of the method of resuscitating asphyxiated persons, together with a description of the symptoms and treatment of carbon monoxide poisoning?

Respectfully yours,
J. H. C., St. Paul, Minn.

*Answer:* Assuming no resuscitation apparatus is available and that the victim has to be brought around by artificial respiration, the following would be the procedure:

Lay the victim on his belly with his face to one side so that his nose and mouth are free for breathing. Place the victim's arms and hands exactly as shown in Figs. 1 and 2, one arm straight out beyond his head, the other under his head. This position is important as it helps to expand his lungs. In drowning cases have the head a little lower than the body.

Kneel, straddling the victim's thighs and facing his head; rest the palms of your hands on his short ribs, with your

Fig. 1

Fig. 2.

thumbs parallel with the spine and about two inches apart, and with fingers spread out as much as possible (see Fig. 1).

With arms held straight, swing forward slowly so that the weight of your body is gradually, but not violently, brought to bear upon the victim (see Fig. 2). This act should take about two seconds.

Then, leaving your hands in place, swing, backward slowly so as to remove the pressure, thus returning for two seconds to the position shown in Fig. 1.

Repeat deliberately about 15 times a minute the swinging forward and backward slowly so as to remove the pressure, thus returning for two—a complete respiration in about four seconds. Keep that movement in time with your own breathing.

While artificial respiration is being continued, have an assistant draw the victims tongue (if it has fallen back it usually falls forward when the victim is face down). Hold the tongue out, if it tends to draw back, by wrapping a handkerchief around it. The handkerchief may also protect the assistant's fingers from being bitten. The assistant should also loosen any tight clothing around the victim's neck, chest or waist.

Do not permit bystanders to crowd about and shut off the fresh air. Keep the victim warm with proper coverings and by placing beside his body hot bricks, bottle or rubber bags filled with warm (not hot) water. When bricks, bottles or bags are used, wrap in cloth so as to prevent burning the victim.

Symptoms of carbon monoxide poisoning are: a choking sensation, followed by giddiness, headache, nausea and muscular weakness. There is drowsiness and ringing in the ears. There may be vomiting. Convulsions are sometimes present. In the last stage of the poisoning the pulse is rapid and irregular, respirations are hurried and shallow, the face is cyanotic, the patient is unconscious.

The treatment of a carbon monoxide poisoning victim is first to remove the patient to the fresh air. Give oxygen; administer respiration, if necessary; allow the patient to inhale

the fumes of ammonia; stimulate freely by mouth, if the patient is able to swallow. If the patient is unable to swallow, give stimulants by rectum.

## Using Cellar Pipe; Ventilation; etc.

*To the Editor:*

Will you give me answers to the following Questions:

1. You have a line of hose 500 feet from engine. How would you increase pressure of same?

2. You respond to a still alarm to a 3-story frame dwelling shortly after midnight. Upon your arrival in charge of an engine company you find there is no fire, but the building is heavily charged with illuminating gas. State in detail what you would do under the circumstances?

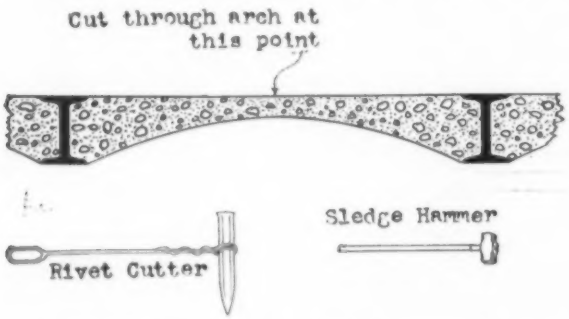
3. You are to put a Baker cellar pipe to work at a cellar fire, cutting a hole through the first floor, which is of fire-proof construction with brick arches filled with cinders and concrete, and on which is laid a wooden floor. Explain in detail how you would do the work, mentioning all tools and appliances.

S. J. F.,
Brighton, Mass.

*Answer 1.* This question is somewhat vague. You do not mention what pressure you desire to increase, whether the engine or nozzle. You do not give the size of the nozzle.

However, it will be assumed that you have a 1¼ inch nozzle on the 500 feet of 2½ inch hose, and that you desire to increase the nozzle pressure.

There are two ways of increasing the nozzle pressure without changing the hose layout. The first is by increasing the engine pressure. The second is by reducing the size of the tip. For instance if a 1⅛-inch tip were used the pressure at the tip,




having the same engine pressure, would be greater than if the 1¼ -inch tip were employed. Likewise, if a 1 inch tip is used the pressure will be still greater than with the 1⅛ inch tip, assuming a constant pressure is maintained at the engine.

*Answer 2.* At this hour of the night you are likely to encounter a number of cases of asphyxiation, where the building is heavily charged with illuminating gas.

Naturally, the first thing to do will be to provide ventilation in the building and then look for victims of the gas. To secure ventilation the windows all around must be opened so as to provide thorough ventilation.

While this is being done assign men to shut off gas from outside of building if possible. Frequently the gas shut-off box is located at the curb and the gas may be shut off instantly if the gas key is on hand.

If there is no gas cut-off on the outside of the building or in a gas cut-off box, then one or two men may be sent to the basement of the building, but only if equipped with smoke helmets. The density of the gas fumes may be such that smoke masks, especially where they have been in service for some time without replacement, might not be sufficient protection.

Just as soon as it is discovered that there are victims of asphyxia in the building, a call should be sent at once for ambulances, depending upon the number of victims at hand. In the meantime, until the arrival of ambulances, first aid should be given the victims, in the form of artificial respiration.

It will be assumed that proper ventilation is provided before the men enter the building to remove those overcome by the gas.

*Answer 3.* First determine a point at which the hole is to be put through the floor. In determining this point the wooden flooring over the concrete construction is not considered. The governing condition is the point in the concrete at which it is easiest to make the hole.

The thinnest point of a concrete flooring, built in the method you state, is the exact center of the arch. At this point you have the least material to cut through so it will be necessary to determine a point on the floor which is midway between floor beams. Locating this point from the upper side of the flooring can usually be done by observing on the ceiling the position of the beams. The floor beams, in nine times out of ten, run parallel and in line with the beams of the ceiling. After the center point between floor beams has been determined, then the cutting operation may be started.

To cut up the floor an axe is usually used. Cut a hole of sufficient size in the wooden floor to allow plenty of room for cutting through the concrete flooring.

After the wooden flooring has been chopped up then the rivet cutter and sledge is used for cutting through the concrete floor. The rivet cutter is a tool formerly used for cutting rivets entirely, but it has gradually found a greater use in cutting through concrete floors. It consists of a short cold chisel with a wire handle of sufficient length to provide safety for the man holding it. The sledge is of the usual fire department size.

The hole should not be made any larger than absolutely necessary to accommodate the Baker cellar pipe. The method of putting the Baker pipe to work in this case is precisely the same as in the case of ordinary wooden floors so that no space will be here given in describing this part of the operation.

The sketch herewith shows a typical cross section of concrete flooring with an arrow indicating the point through the arch at which the hole should be cut. A rivet cutter is also shown as well as a sledge hammer.

## Carbonic Gas Fire Extinguisher

*To the Editor:*

In the Washington Times of January, 1927, a new way of extinguishing a fire was described with a headline "Freezing the Fire," and the article spoke of the method as being a German invention and said it would be on the market here soon.

Will you please tell me where it can be obtained and oblige,

S. J. T.,
Washington, D. C.

*Answer:* The type of extinguisher you have in mind is probably the "Fyre Freez" extinguisher. The principle employed is the use of liquified carbon dioxide gas. This liquid is contained in a steel cylinder and is released, by valve, on the fire. Upon vaporizing the liquid absorbs from the air great quantities of heat and if this heat is not present the temperature of the air around the gas which expands is so chilled that any moisture in it is, in connection with the gas, is turned into "carbonic snow."

The concern manufacturing this extinguisher is the General Carbonic Company, of New York, N. Y.

## Saving Time in Stretching Hose

*To the Editor:*

How much time, if any, is saved by those who stretch from the fire to the hydrant, and then pump, over those who stretch from the hydrant to the fire and return to the hydrant to pump?

Very truly yours,
T. G. J.,
Larchmont, N. Y.

*Answer:* The answer to this question would depend upon two things: The distance from the hydrant to the fire and whether or not the truck in responding to the alarm reaches the hydrant or the fire first—that is from which direction it is coming to the fire.

It also depends, too, on whether or not the hose is laid in the body of the apparatus in such a way that it will be pulled off with the proper coupling at the fire and the proper coupling at the hydrant.

To be specific, assume that a hydrant is 400 feet from a fire and that the apparatus passes the fire and goes to the hydrant.

Under these conditions one minute might be saved by stretching from the fire to the hydrant, at which point the pumper will be placed for operation.

On the other hand if the hydrant is passed on going to the fire, then there would be no appreciable saving of time by stretching from the fire to the hydrant rather than from the hydrant to the fire and returning to the hydrant to pump.

In large fire department operations the difficulty encountered, when the street is littered up in front of the fire, in having the apparatus pass the fire, frequently makes it necessary to stretch in from a hydrant by hand. In this case the pumper stops at a hydrant and the line is dragged in to avoid apparatus crossing over hose lines and other confusion which would result from driving apparatus into the congested zone.

**New Castle, Pa., Plans for New Station**—Plans are being made for a fire station to be erected in New Castle, Pa.

Syracuse Firemen Fighting the $220,000 Blaze in the Downtown Section of the City, in Which Two Members of the Department Were Injured

## HUNDRED YEAR OLD BUILDING MAKES HARD FIRE TO CONTROL

**Syracuse Blaze in Ancient Structure Confined to Building of Origin—Two Firemen Injured**

A FIRE which threatened to assume serious proportions, and gave the fire department of Syracuse, N. Y., from the chief down, some anxious moments, occurred in that city on March 1. The blaze originated in the warehouse of M. Goldbefg & Son, on North Salina Street, on the third floor, from an unknown cause. The building, which was of brick construction, consisted of three stories and a large attic, and covered 200 by 150 feet in area. It was an ancient structure, having been built fully one hundred years ago.

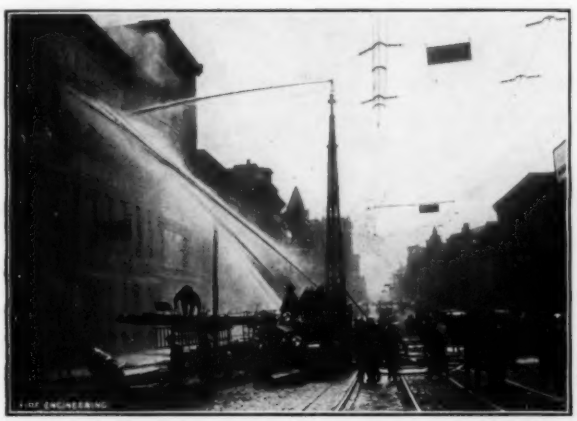
The first alarm was received at the fire department from a box at 11:30 a. m. Immediately upon the arrival of chief C. S. Coombs, of the Syracuse Department, noting the seriousness of the situation, he sent in a second alarm summoning 150 men, with nine pumping engines, and five trucks, of Ahrens-Fox, Seagrave and American-LaFrance make.

With this force and with 25 engine streams, thrown upon the fire, the firemen confined the blaze to the building of origin, fighting the fire with 20 or 25 6-inch double hydrants, spaced some 300 feet apart, and with a pressure of 95 pounds at the hydrant.

The fight lasted about three hours. Some 13,000 feet of hose were laid, with nozzles in use of 1½ and 2½ inches. Turrett pipes and deluge sets were also brought into play by the Syracuse fire-fighters. The gravity water system of the city furnished excellent pressure throughout the period of handling the fire.

The structure on fire was occupied by general business establishments, there being a furniture, a clothing and a five and ten cent store housed in it. Two members of the department were severely injured while on duty, fighting the blaze.

The loss on the building and contents combined was estimated by Chief Coombs as about $220,000.



Good Streams at the Big Syracuse Business Building Fire. Plenty of Water and Plenty of Pressure

## Louisville Has Three-Alarm Fire

Sparks from a machine in the Louisville Bedding Company plant in Louisville, Ky., started a fire recently that required a three-alarm response before it was under control. Nine men were injured in fighting this fire, which was in a congested value district.

The first floor was completely enveloped by flames when the first company arrived. The apparatus that responded included one steamer, three Ahrens-Fox and seven Seagrave pumpers varying in size from 750- to 1400-gallons. The building had sprinkler protection, but due to some repairs on the system, the controlling valve was closed.

Fighting the Blaze in the Louisville Bedding Co. Plant

## CIGARETTE AMONG RUBBISH CAUSE OF BIG BLAZE IN OLD BUILDING

**Waterbury Has Large Fire on Silver Anniversary of Its Biggest Blaze—Threatened a Repetition of Conflagration**

THE eternal cigarette, thrown among rubbish, again caused a fire in Waterbury, Conn., on February 2, which promised to become a serious conflagration before it was brought under control by Chief Henry H. Heitman and his men. The structure involved was a three-story brick affair, 100 x 300 feet in dimensions, and, as Chief Heitman expressed it, "the Lord only knows how old it was."

Chief Henry H. Heitman, Waterbury, Conn.

In describing the blaze, Chief Heitman writes: "This fire started at the top of the second story, connecting with a long row of small apartments, in which about 30 persons were housed. The hour was 12:07 a. m., and every one was abed. The progress of the fire was such that it is a miracle that no lives were lost. One woman was hurt and taken to the hospital; one fireman was also taken to the hospital with an injured spine and several others sustained minor hurts. The building involved is three stories at the front, with a long, narrow two-story structure attached, housing the occupants of the apartments. Directly to the west of it is located a Roman Catholic church, with a very high steeple, and this was enveloped with sparks by the thousands during the height of the fire. To the east and adjoining the building on fire were a motion picture theatre and a legitimate theatre. To the rear was a mammoth storage plant, filled with all kinds of furnishings. Attached to this, and bulked with the rest was a block housing 40 families. Fortunately the night was not windy, for otherwise we hate to think what might have happened.

"This fire occurred, it almost seemed, in celebration of the silver anniversary of the greatest fire Waterbury ever had, on February 2, 1902, when the city was almost ruined by a conflagration which destroyed buildings and property to the amount of $2,000,000."

The diagram and illustrations were furnished through the courtesy of Chief Heitman. Three alarms were sent in, the fire burning four hours. There were about 70 firemen in service, with six pumpers, three trucks and one straight hose. Five 8-inch three-way hydrants were used, spaced about 100 feet apart, with a pressure of 100 pounds. Ten hydrant streams were thrown, 2,500 feet of hose being laid, with nozzles of 1¼ inches. Smoke helmets and two "Y" connections were also utilized. The loss on the property, valued at $75,000, was estimated at $40,000, and on the contents, valued at $125,000 and consisting of printing machinery, etc., dress goods, candy and apartment furnishing, about $100,000.

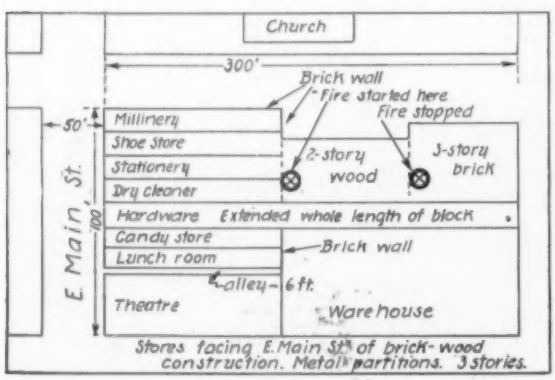



Diagram of the Waterbury, Conn., Fire Area.

## WHAT'S BURNING

**THE following list includes fires of $25,000 loss and over in the United States and Canada, for the periods designated in the headings. These figures, compiled from telegraphic reports, are based on estimates made at the time, and are subject to later investigation and consequent revision. Taken as a whole, however, they give an approximately correct view of the losses incurred. The figures represent loss in thousands.**

**Week Ending March 11**

| | |
|---|---|
| TIMMINS, ONT.—Meyers Drug & Pierce Hardware Stores | 80 |
| UNION CITY, TENN.—Cumberland Presbyterian Church | 80 |
| DANBURY, CONN.—Plant of Standard Fur Company | 80 |
| SALZBURG, MICH.—Box Factory of Halverson Lumber Co. | 25 |
| COATESVILLE, PA.—Breuninger Apartments damaged | 100 |
| MOUND BAYOU, MISS.—Business establishments damaged | 65 |
| BLAIRSVILLE, PA.—Bldgs. in business section destroyed | 80 |
| FORT WORTH, TEXAS.—McLellan Stores and adj. property | 125 |
| DETROIT, MICH.—Enameling Dept., Paige-Detroit Motor Co. | 25 |
| HAYNESVILLE, LA.—Cotton warehouse destroyed | 40 |
| PLAINVIEW, TEXAS.—Bldg. of Panhandle Produce Co. | 25 |
| TROY, N. Y.—Grand Central Theatre bldg. | 100 |
| HORNELL, N. Y.—Frances Brothers Ice House | 25 |
| ELLISBURG, N. J.—Farm bldg. owned by A. Musik | 25 |
| CRANSTON, R. I.—Auto paint shop of Wm. Young | 100 |
| GREENVILLE, TEX.—Beall Hardware Co. bldg. | 25 |
| STOUGHTON, MASS.—Two bldgs. destroyed, two damaged | 80 |
| PRESQUE ISLAND, ME.—Several bldgs. in business section | 125 |
| FAIRFIELD, IA.—Bldgs. of Fairfield Brick & Tile Co. | 25 |
| EDINBURGH, ILL.—Rink & Sheiber Grain elevator destroyed | 40 |
| ROLFE, IA.—Elevator of Rolfe Grain & Milling Co. | 30 |
| FLECH, MICH.—Advance Industrial Supply Co. bldg. | 25 |

Upper, Looking Down Upon the Ruins of the Moriarty Building Fire at Waterbury, Conn., After Roof had Fallen In, Carrying Two Large Hot Water Tanks with It. Lower, Side View, Looking East. Note High Tension Wires which Hampered Firemen Until Power was Cut Off.

WATERTOWN, S. D.—Barn and silo on Brookside Dairy Farm 25
ALEXANDRIA, S. D.—Business establishments damaged..... 40
BUFFALO, N. Y.—Atlas plant of Standard Oil Co..... 300
MANCHESTER, CONN.—Property of Patrick O'Gorman estate 25
BRISOL, CONN.—Plant of New Dept. Mfg. Company..... 25
JERICO SPRINGS, MO.—Bank of Jerico Springs and adjacent property ..... 25
BINGHAMTON, N. Y.—Business bldg., 146 State St..... 30
NOGALES, ARIZ.—Several business establishments..... 200
BENNINGTON, VT.—Five establishments destroyed..... 45
COVINGTON, KY.—Elevator of Hatfield Coal Co..... 30
CARROLLTON, KY.—Warehouse of Gayle Loose Leaf Tobacco Co. ..... 35
LEESBURG, FLA.—Dredge of Florida Eng. & Dredging Co... 80
WILLIAMSPORT, PA.—Unit of U. S. Sand Paper Co. plant.. 100
ATLANTA, GA.—Residence of T. O. Poole..... 60
POINT ST. CHARLES, CANADA.—Riverside School destroyed 40
FREDERICKTOWN, PA.—Garage of Victoria Automobile Co... 40
NEEPAWA, MAN., CANADA.—King Edward Hotel destroyed.. 80
ST. LOUIS, MO.—Dormitory of St. Louis House of Retreats.. 25
TAMAQUA, PA.—Old Merchants' Hotel Bldg..... 30
ST. LOUIS, MO.—Planing mill of Chas. Turner..... 50
EASTON, MD.—Residences of F. Ross and S. Nevius..... 40
WINSTON-SALEM, N. C.—Plant of Hill Veneer Co..... 170
FORT WORTH, TEX.—Bldg. of Merchants' Fast Motor Lines. 60
BUCKNER, VA.—Buckner's Excelsior Mills..... 25
SOUTHBRIDGE, MASS.—Bedard Block damaged..... 40
GOOD PINE, LA.—Stock of Good Pine Lumber Co..... 50
LIMA, N. Y.—Town Hall damaged..... 45
CLEVELAND, O.—Gehring Brewery..... 40
GALLIPOLIS, O.—Tobacco warehouse destroyed..... 80
BLAIRSVILLE, PA.—Business bldgs., E. Market St..... 60
YARBRO, ARK.—School bldg. damaged..... 25
WHEATLEY HILLS, L. I., N. Y.—Garage of Mrs. C. C. Ramsey 40

### Week Ending March 18

NEW ORLEANS, LA.—Warehouse Mintz & Goldman Co..... 60
PLASKY, N. Y.—Plant of Salmon River Table Co..... 80
PURCHASE, N. Y.—Home of Henry Esberg, destroyed..... 50
PAWTUCKET, R. I.—Bldg. owned by F. M. Silva..... 50
PETERSBURG, VA.—Property of Barnhart Mercantile Company. ..... 125
PHILADELPHIA, PA.—Stone crushing plant at Valley Forge. 40
CANTON, GA.—Cherokee County Courthouse damaged..... 40
MUNFORDVILLE, KY.—J. R. Lawler Flour Mill..... 25
CHATTANOOGA, TENN.—Foy-Ney Co. Bldg..... 25
BLOOMSBURG, PA.—Victoria Theatre and adj. property.... 180
BRISTOL, CONN.—Lilley-Tracy block damaged..... 100
WHITING, IND.—Portion of business block damaged..... 170
MAB, LA.—Plant of Hillyer-Deutsch Lumber Co..... 100
BOSSIER CITY, LA.—Southland Cotton Oil Co. plant..... 70
MEADVILLE, PA.—M. E. Church, adjacent chapel..... 170
ALTOONA, ALA.—Altoona High School destroyed..... 55
NEWARK, N. J.—Bldg. at 156 Central Avenue damaged..... 25
PILOT MOUNTAIN, N. C.—Business establishments damaged. 40
HAVERHILL, MASS.—Shoe plant of Berman Company..... 40
MINNEAPOLIS, MINN.—Great Western Stove Co. bldg..... 80
NORWALK CONN.—Box factory of C. F. Trowbridge Co..... 50
WILPEN, PA.—Wilpen Hotel and adjoining property..... 80
M'KEESPORT, PA.—Home of Samuel Grossman destroyed.... 25
PORT NORFOLK, VA.—Property of South Hill Mfg. Co..... 125
BELLEVUE, MICH.—Shaler Block destroyed..... 25
PORT AUSTIN, MICH.—Elevator of Bad Axe Grain Co..... 30
PITTSBURGH, PA.—Building of Star Wafer Co. damaged.... 50
LOUISVILLE, KY.—Plant, Commercial Motor Car Co..... 50
READING, MICH.—School house destroyed..... 65
DEXTER, MO.—Baker and Thrower stores damaged..... 30
GORDON, NEB.—Duerfeldt-Margrave garage and contents..... 25
HUNTINGTON, W. VA.—Barns owned by N. J. Sneed..... 30
LOUISVILLE, KY.—Ohio Valley Grocery establishment..... 60
BENNINGTON, VT.—Putnam House and adjoining property... 45
HOPKINSVILLE, KY.—Plant of Acme Flour Mill..... 400
MOUNDS, UTAH.—Mounds Shearing Co. plant destroyed..... 25
AVOCA, N. Y.—Press bldg. and adj. property damaged..... 60
DANVILLE, VA.—Plant American Furniture Co..... 30
HOLYOKE, MASS.—J. & W. Jolly, Inc., foundry..... 30
ST. LOUIS, MO.—Bldg. of Manhattan Elec. Supply Co..... 200
PARK CITY, UTAH—Blyth-Fargo store destroyed..... 170
BOGALUSA, LA.—Silverman Variety Store..... 40
WILPEN, PA.—Wilson home and four adj. store bldgs..... 80

## New York Safeguards High Pressure

Because of the blasting going on in New York city for the construction of the Eighth Avenue Subway, a communication was sent by the Department of Water Supply, Gas and Electricity to the fire department telling of the precautions taken to safeguard the operation of the high pressure fire system.

Each subway contractor is required to maintain on a hydrant in his subway section, a gauge that records the pressure of water system. When the gauges show that the pressure in the high pressure main is greater than that of the domestic service, the contractor is not permitted to fire any blast until the pressure in the high service main has been reduced. Instructions have been issued to the contractors concerning the proper operation of the gate valves controlling the water flow in the high pressure fire main on Eighth Avenue.

In case mains of the high pressure system are damaged, the contractor must first make repairs to the damaged sections before doing other work. High pressure hydrants on the street affected normally have a flow of 1,500 gallons per minute.

**Granger Head of Cleveland Fire School**—Jim Granger, first assistant fire chief in Cleveland, Ohio, has been appointed the head of the newly formed fire school. Classes are held daily, subject of course to the possibility of the students' services being required at some large fire.

## Montana Firemen Given Day Off by Law

When Governor John E. Erickson, of the state of Montana, affixed his signature to House Bill No. 208, he wrote finis to something that no other governor of any state in the United States ever did for the fire-fighters.

Montana, the state that made two platoons for fire departments of cities of the first class statewide, now has made it statewide for her firemen to have a day off every eighth day. At the convention last year of the Montana State Firemen's Association, held at Big Timber, this day off plan was brought up and favorably acted upon. The legislative committee was instructed to draft a bill amending the two-platoon law, whereby a day off was given to firemen of the cities of first class.

The firemen of Missoula, have been the only ones in the state that have had a day off system in vogue. This system has been working successfully for over two years. It was granted by the city commissioners, after a committee of firemen presented a petition signed by all. The firemen convinced the commissioners that it would not lessen the efficiency of the department, and the day off was granted. Missoula's fire-fighters get thirty days sick leave, and fifteen days vacation on full pay every year, though the latter is not cumulative.

The addition of some men will be necessary, but Chief James T. Cranney of Missoula has not announced yet the number of men he will ask the city commissioners to put to work. This will not be done till the beginning of the fiscal year, May 1st.

Governor Erickson also signed House Bill No. 95, which corrected mistakes in the pension and disability law. In the past lobbying has always had to be done to have the monies in the state general fund transferred to a pension and disability fund by legislative act. This had to be done because the firemen's half of the insurance companies license fee was in the general fund. Now it is placed in the pension and disability fund when received. George P. Porter, state auditor and ex-volunteer fireman of Butte, always put up a winning fight for the firemen, but he might not always be in office.

CLARE P. KERN.

**Presentation of Gifts to Chief and Mrs. John Kenlon**

At the testimonial dinner tendered to Chief John Kenlon by his friends both in and out of the New York fire department, he was presented with a diamond studded gold badge to take the place of the one that was given to him at a previous occasion, and which was either stolen or lost. Honorary Deputy Chief Robert H. Mainzer presented a diamond bracelet to Mrs. John Kenlon. From left to right, those in the group are Dr. Harry Archer, toastmaster, Honorary Department Chief McKenna, Chief John Kenlon, Mrs. John Kenlon and Honorary Deputy Chief Robert H. Mainzer.

**New Arrangements for W. S. Nott Company**—The American-LaFrance is no longer represented by the W. S. Nott Company at Minneapolis, Minn. The Minneapolis concern has recently brought out a line of fire apparatus of their own make which is being marketed under the name "Universal," and the manufacturers have met with a great deal of success.

**Wants Commission to Fix Insurance Rates**—A bill has been introduced in the New York state legislature for a commission to fix fire insurance rates and to investigate fire hazards. This commission would be composed of three members whose salaries would be fixed by the superintendent of insurance as this commission would form a sub-division of that bureau. Its creation would nullify the functions of the Fire Underwriters' Association.

# COURSE OF INSTRUCTION IN FIRE PROTECTION

## AS GIVEN AT THE UNIVERSITY OF ILLINOIS

### MODERN METHOD OF FIRE EXTINGUISHMENT

By HARRY K. ROGERS

Engineer, Western Actuarial Bureau, Chicago, Ill.

*IN this thirty-first installment of the University of Illinois Course in Fire Prevention, Mr. Rogers gives some constructive ideas on fire-fighting, extinguishment and protection:*

#### Fire in an Unventilated Building

This question of ventilation is best illustrated by showing what will happen in the event of a building not being open. We have supposedly a fire occurring in the basement of a five story building. There is an open elevator shaft. The smoke and heat fill this, of course, first, being lighter than air, and run rapidly over the entire top floor. The third floor is not so badly involved, neither is the second as bad as the third, and the first floor has very little smoke in it, but if this building is not ventilated by heat radiation this is going to continue up until it is on the next floor. In all probability you can get a flash from this fire in the basement, involving this entire floor. Everything has become so heated it will burn with a flash. The same thing is true of the next floor and the next. We get that smoke explosion and the entire building is involved almost instantly, a fire from one corner to the other, whereas, had this vent been open, it would have taken it up the shaft and it would have been possible by advancing with your lines to follow it up and knock it out. That illustrates in a small measure the practicability of ventilation.

#### Use of Small Hose Lines in Roof Fires

Constant criticism has been directed against fire departments, and sometimes very justly, because of excess water damage, such as I gave you an illustration of in this fire in Minnesota. While I agree that big streams are very often necessary, there are any number of fires that may be reached quickly and are of little consequence, where a small stream is more effective than a large one.

A number of eastern coast fire departments have adopted this means; you can take it for what it is worth: On top of the regular hose body they have fastened an auxiliary hose body, divided in the middle, and in this are two lines of 1½-inch cotton jacket, rubber lined hose with nozzles attached. If this apparatus goes out in the residence district to a small roof fire, instead of coupling up this big line with a pipe they lay out the ordinary 2½-inch fire hose and instead of putting on the pipe they put on this siamese coupling. Two men advance on the fire, one taking one nozzle of this 1½-inch stream and the other fellow going on the roof. It is easily possible for a man to take one hundred feet of this hose by himself from the street. I have seen that demonstrated by eastern coast cities and it has been very effective. I would recommend that you carry a small line of hose, perhaps one hundred feet of 1½-inch hose, with a coupling that could be attached for use in mopping up a fire or for small roof fires.

#### The Five-Gallon Pump Can

Then there is another piece of modern equipment that has been developed in the last few years, known as the 5-gallon pump can, an ordinary water can with ten or fifteen feet of hose attached, which has a capacity of five gallons and is used for small fires; used in place of the chemical extinguisher. In a great many instances of a little fire in the attic one fellow can operate this pump and another fellow handle the hose. In grass fires it is a very effective weapon. Two men can walk along with this and pump; each helps carry the pump, one directing the stream, and almost as fast as you can walk you can put out the ordinary grass fire that causes so much trouble in the spring and fall time. Its most important use, in my estimation, is that of an extinguishing agent to use after your big fire is knocked down, where you have a little fire in this window or this pile of rubbish. It is a mean job to drag a line of hose around and this pump can works most effectively in that case. It has the added advantage over the chemical extinguisher in this: when you use an ordinary 2½-gallon extinguisher, when it is exhausted you are through, while with a pump can you can fill it continuously. Many a fireman has had a fire to handle with a 2½-gallon extinguisher and had it almost out, but did not have quite enough liquid. With this pump can you can fill it while using it. It is a splendid piece of apparatus. I don't mean to replace your chemical extinguishers by using this, because chemical fire extinguishers are very necessary, in my estimation.

#### Three General Types of Chemical Extinguishers

There are three general types of chemical extinguishers, the soda-acid, the carbon tetrachloride and foam type extinguishers, which are very effective when used on certain classes of fire. The soda-acid is good on any fire that is more or less confined, due to the fact it requires at least fourteen per cent of oxygen in the atmosphere to support combustion and this gas generated by this soda-acid type hits the heated surface, creating a gas blanket, excluding the oxygen, and it must go out, but it is only good where your fire is more or less confined, because if you have any great volume of fire your heat radiation will carry this gas away faster than you can generate it. In a roof fire the wind will carry the gas away faster than you can make it.

*(To be continued)*

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## Wyoming State Firemen Organize

Now, in addition to the other state associations, there is the Wyoming State Firemen's Association. This was organized at a meeting held in Cheyenne, Wyo., on Monday, February 14, and the next meeting of the association will be held in Casper either in July or August.

The introduction of better building codes and the removal of fire departments from the realm of politics so that a higher calibre of men will find it worth while to join the fire service, are two of the aims of the newly organized body.

**The Necleus for a Strong State Firemen's Organization**

Representatives from departments in Wyoming and Colorado watching Hal Elias of the Metro-Goldwyn-Mayer delivering a print of "The Fire Brigade" to Chief Ed. P. Taylor of Cheyenne. The picture was shown at an afternoon session of the gathering.

There were forty-three delegates present from Wyoming, ten from Denver, four from Fort Collins, and others. Governor Frank C. Emerson made a brief address of welcome at the opening session. Other speakers were Chief Ed. P. Taylor of Cheyenne, who is active in the formation of the association, E. T. Turnbull, a delegate from the Colorado State Firemen's Association, and L. A. Barley of the Mountain States Fire Underwriters.

In the afternoon, the delegates had an opportunity to see the "Fire Brigade," the popular motion picture showing the activities of a fireman, at a private showing in a local theatre.

Percy S. Hoyt, first paid fire chief of Cheyenne was elected president. The state was divided up into four sections with a vice-president for each section. They are Ed. P. Taylor, of Cheyenne, first vice-president; W. R. Leib, Casper, second vice-president; F. V. Tossie, Sheridan, third vice-president; V. A. Davis, Evanston, fourth vice-president; Justin Patrick, Casper, secretary; V. L. Jordan, Wheatland, treasurer; and G. D. Anderson of Torrington, historian.

# INDUSTRIAL PLANT PROTECTION

## INDUSTRIAL DUST EXPLOSION HAZARD MUST BE FOUGHT BY SAFETY RULES

**Increase in Quantity of Production Causes More Opportunities for Dust Explosions—Flour Mill Explosions Reduced**

By DAVID J. PRICE,
Engineer, U. S. Department of Agriculture.*

THE possibility of dust explosions in the manufacture of our essential food products is now generally recognized, with the result that research has made very helpful contributions to the knowledge available on this subject. It is sometimes difficult to measure the accomplishments of safety work and to really see that encouraging results are being obtained.

No one can engage in a nobler undertaking than to devote his time and effort to the development of preventive methods that will result in the protection of the life of his fellowman.

### Types of Industries Affected by Dust Explosions

In recent years dust explosions have occurred in lines of industry where they had not previously taken place. The number of industrial plants in which the dust explosion hazard exists appears to be constantly increasing. Explosions of wood dust, powdered rubber, sugar, sulphur, zinc dust, magnesium powder, aluminum dust, cork dust, powdered milk dust, paper dust, dye material, pitch dust, leather dust and starch dust have occurred. In fact, it appears that any type of dust which will burn will readily explode and result in a dust explosion under favorable conditions.

This development in recent years, which indicates definitely that dust explosions can occur in practically all lines of industries where combustible dusts are created during manufacturing operations, is of particular significance. We readily recall that in view of the fact that the earliest dust explosions occurred in flour mills and grain handling plants, it was the general opinion for some time that such explosions were necessarily confined to the grain handling industries. The disastrous losses experienced, however, in a large number of recent dust explosions indicate the wide range of the problem. This emphasizes the importance of careful study to determine the relation between certain types of processes and the dust explosion hazard.

### Extent of Losses

The Bureau of Chemistry has a record of 280 dust explosions in industrial plants. In seventy of these explosions 459 persons were killed and in ninety-two of them 760 were injured. The property loss in 144 explosions amounted to $33,500,000, an average of approximately $240,000 for each explosion.

The importance of this can be more fully appreciated when we realize that a recent census of manufacturers shows that approximately 28,000 industrial establishments in the United States alone are subject to this hazard. These factories employ approximately 1,324,000 persons and manufacture products of an annual value in excess of $10,000,000,000.

### Results of Research

Research work has shown that dust explosions and gas explosions are somewhat similar in behavior. The causes which ignite combustible gases will readily ignite combustible dust. The various dusts have fixed ignition temperatures, as have the combustible gases, and require certain limits of concentration to make an explosive mixture. The control of the problem, therefore, must be approached in much the same manner as the control and prevention of gas explosions.

### Progress Made in Control

Although the matter of dust explosion prevention has been given direct attention in the United States and Canada only in recent years, significant progress has been made in the fields in which this special endeavor has been undertaken. Marked progress has been made in connection with the losses from dust explosions and resulting fires in grain threshing machines in the Pacific Northwest. These explosions and fires cause extensive losses to both threshing machinery and grain and very little relief was afforded until the matter was taken up by the United States Department of Agriculture and the State experiment stations in that territory. The investigations resulted in the development of effective control measures which have been instrumental in the reduction of the losses and the prevention of these explosions during the threshing of the grain crop in the Northwest. This is a definite example of service which the Department of Agriculture has rendered the farmer. The value of this work has been recognized by the insurance companies, with the result that special rates are now given to the machines equipped with the devices developed by the engineers of the Department of Agriculture.

Marked progress has also been made in the control of dust explosions in certain lines of industry. This is particularly true in flour mills, in which the first disastrous dust explosion on record occurred. This resulted in the design and installation of mechanical methods for effective dust control. The explosion in the Washburn Flour Mills in Minneapolis in 1878 resulted in the loss of eighteen lives. The records indicate that only four lives have been lost in dust explosions in flour mills since that explosion. This must not be taken to mean, however, that dust explosions do not occur in flour mills any more. There have been a number of explosions in recent years. Because of the effective control and preventive methods adopted, however, they have been localized in effect and confined to very limited areas.

Similar progress has been made in other lines of industry, particularly in those industries in which large losses of life and property damage have been experienced.

### New Contributing Causes

The question as to why so many dust explosions are occurring in our industries in recent years in comparison with the earlier periods of operation is raised. This ought not to be difficult to understand. There are several principal contributory causes to the frequency of dust explosions in our modern industries. The expansion to large-scale operation, accompanied by new processes for the utilization of by-products, naturally increases the hazard. Large-quantity production results in the creation of finely-divided dust clouds, which make the ignition more readily possible. New lines of operating processes and new types of machinery and appliances have also contributed to the hazard. In dealing with this matter it must be understood that many of our dust explosions at the present time occur in what may be termed our modern up-to-date and improved industrial plants.

### Value of Safety Work

When we consider that 16,000 lives are lost annually in explosions and fires in the United States—approximately two lives every hour—the larger proportion, of course, being in the industries, we cannot help but be inspired to greater effort and endeavor.

Safety work in the food industries is a noble undertaking. Although the results in many cases cannot be definitely measured, this work should carry with it a sense of satisfaction that could not be enjoyed in any other line of effort. The desire on the part of the safety man to acquire all knowledge available on the subject of dust explosion prevention is deserving of the greatest encouragement. The application of this knowledge in the installation of control measures will eventually result in the reduction of our losses from dust explosion and fires and in the saving of life and property. The human appeal that accompanies work of this character should in itself be an incentive for greater effort on the part of the men in the industries to protect the lives of the workmen engaged in the operation of our factories.

The U. S. Department of Agriculture is willing and anxious to make available all information it has that will in any way assist the industries of the country in the reduction of the losses of life and property as a result of dust explosions and fires.

*From a paper delivered before the Food Section of the National Safety Council Congress, Detroit, Mich.

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**Tolland, Conn., Organizes Fire Department**—The Tolland, Conn., fire department has been formally organized with twenty-two members. Edward Wochomurka has been elected chief.

**New Headquarters Recommended for Indianapolis**—Following a survey made by the National Board of Fire Underwriters last summer, a recommendation was made that an isolated fire alarm headquarters be built as soon as possible. The present system is housed on the fourth floor of the city hall. Another criticism of the department was the lack of civil service, but this condition has been remedied before the report of the underwriters was made public.

## Plans for New Boston Fire Station

The new Central Fire Station for the City of Boston, Mass., is to be built on property located on Broadway and extending through to Warrenton street.

J. M. Gray Company, the architects, have designed a building eighty-four feet wide by one hundred and five feet long, three stories in height, of fireproof construction, embodying all the modern requirements of a building of this character.

The Broadway facade is of limestone, with granite base and boldly rusticated first story terminating in a balcony of stone at the second-floor line.

The first floor contains a large apparatus room, forty-eight feet wide by seventy-three feet long, with a clear floor space free of columns. Adjoining this is the apparatus room for chiefs' cars, nineteen feet wide by forty feet long. Directly connected to the apparatus room is a work shop, with supply and storage rooms. Three staircases of steel with tiled walls lead to the upper floors and basement.

The second floor contains offices of the chief of fire department, officers' rooms and officers' hall, with toilets and showers adjoining. The rear portion of the second floor is devoted to locker rooms, toilets and showers for the privates.

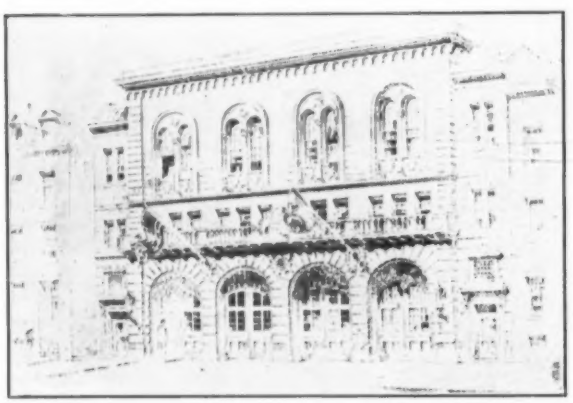
On the third floor on the Broadway front of the building is a large recreation hall forty feet square, with a stage; adjoining this is a study room, dining room and kitchen. Rooms for assistant chief and aids to chief, two large dormitories, with boot rooms, complete this floor.

In designing the dormitories and locker rooms the architects have recognized the two platoon system by providing separate rooms for each platoon.

On the roof is a large tiled surface, over which an awning is to be provided for recreation during the summer months.

The basement contains heating apparatus, hose racks, laundry, drying room and storage.

This building, which will be completed November, 1927,



**Architects' Drawing of Central Fire Station for Boston, Mass.**

is to replace the fire station on Mason street, formerly occupied by Engines 26 and 35, which was torn down when the property was sold to the Keith-Albee Company as a site for a new theatre which is now in process of construction. The chiefs of District 5 are now stationed in the house of Engine Company No. 7 on East street.

Excavation work has now started, and it is planned to expedite the building of the new station in the hope of having it ready for occupancy next fall.

HARRY BELKNAP.

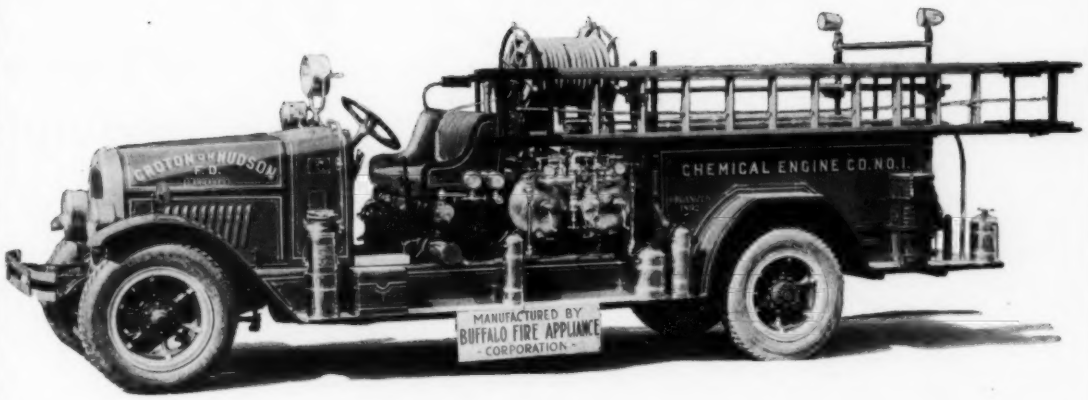
## Bookings of "The Fire Brigade" Increase

(*Continued from page 282*)

| CITY | THEATRE | DATE |
|---|---|---|
| **Louisiana** | | |
| Albeville | Frank's | Aug. 18-19 |
| Baton Rouge | Louisiana | April 28-29 |
| Franklin | Opera House | April 26-27 |
| Shreveport | Majestic | April 23-24 |
| Slidell | Clio | April 12-13 |
| **Maine** | | |
| Bangor | Opera House | May 16-18 |
| Biddeford | Central | April 4-5 |
| Houlton | Temple | June 20-21 |
| Lewiston | Empire | May 9-11 |
| Livermore Falls | Dreamland | May 10 |
| Rockland | Park | April 18-19 |
| Waterville | Haines | May 9-10 |
| Wilton | Bijou | May 11 changed From May 17 |
| **Maryland** | | |
| Frostburg | Palace | April 6-8 |
| Gueydon | Frank's | Aug. 15-16 |
| Lake Arthur | Frank's | Aug. 14-15 |
| Monroe | Lyceum | April 9-10 |
| Plaquemine | Wilbert | April 28-29 |
| Rayne | Frank's | Aug. 18-19 |
| Fuston | Astor | Aug. 10-11 |
| Indian Head | Recreation Hall | May 21 |
| Point Deposit | Tome School | May 7 |
| Rockville | Seco | April 28-29 |
| **Massachusetts** | | |
| Arlington | Capitol | April 25-28 |
| Boston | Bijou | April 18-20 |
| Clinton | Globe | April 27-28 |
| Concord | American Legion | April 13 |
| Framingham | St. George or Goram | March 28-April 2 |
| Fitchburg | Strand | June 20-21 |
| Grander | Gardner | March 31-April 2 |
| Haverhill | Colonial | April 25-26 |
| Lawrence | Auditorium | April 28-30 |
| Leominster | Rialto | June 19-21 |
| Newburyport | Strand | April 25-26 |
| Somerville | Ball Square or Central | April 25-28 |
| Waltham | Waltham | April 18-23 |
| Worcester | Royal | May 1-3 |
| **Michigan** | | |
| Brightmoor | Irving | May 18-19 |
| Ferndale | Ferndale | May 8-9 |
| Fordson | Fordson | May 5-6 |
| Fremont | Ideal | April 4-6 |
| Grand Rapids | Royal | May 15-16 |
| Holly | Liberty | May 25-27 |
| Laurium | Peoples | May 17-19 |
| Newton | Community | April 24-27 |
| Plainwell | Plainwell | May 29-30 |
| **Minnesota** | | |
| Blue Earth | Park-State | May 5-7 |
| Caledonia | State | June 7-9 |
| Austin | Lyceum | April 20-22 |
| Belle Plains | Sandon | May 1-3 |
| Brainard | Gem | June 4-6 |
| Chisholm | Philo | April 1-2 |
| Eveleth | Strand | May 13-14 |
| Granite Falls | Gem | June 21-23 |
| Hoffman | Princess | June 19-21 |
| Jackson | Sandon | April 24-26 |
| Lakefield | Lyric | April 21-23 |
| Mankato | Grand | May 17-19 |
| Minnesota | Community | June 26-27 |
| Morton | Gem | May 17-19 |
| Mountain Lake | State | July 13-15 |
| Pipestone | Strand | May 13-14 |
| Rochester | Empress-Lawler | April 21-23 |
| Sherman | St. Cloud | April 21-23 |
| Sleepy Eve | Princess | May 14-16 |
| St. Cloud | Sherman-Miner | April 21-23 |
| Virginia | Garrick-Rex | May 5-7 |
| Winona | State | June 2-4 |
| **Mississippi** | | |
| Biloxi | Crown-Strand | June 17-18 |
| Brookhaven | Arcade | May 6-7 |
| Clarksdale | Marion | June 6-7 |
| Columbus | Princess | June 27-28 |
| Greenville | Grand | April 29-30 |
| Greenwood | Greenwood | June 6-7 |
| Gulfport | Strand | June 17-18 |
| Hattiesburg | Strand | May 9-10 |
| Holly Springs | Rex | May 2-3 |
| Jackson | Istrious-Majestic | May 13-14 |
| Laurel | Strand | May 23-24 |
| Meridian | Strand | April 22-23 |
| Natchez | Baker-Grand | April 18-19 |
| Pascagoula | | May 16-17 |
| Tupelo | Strand | June 20-21 |
| **Missouri** | | |
| Bay St. Louis | A & G | June 26-27 |
| Monroe City | Joy | June 27-28 |
| St. Joseph | Rivoli | March 26 |
| Shelhina | New Janus | June 29-30 |
| **Nebraska** | | |
| Beatrice | Rivoli | May 2-3 |
| Empress | Deshler | May 22-23 |
| Fairbury | Bonham | May 16-17 |
| Grand Island | Capitol | May 9-11 |
| Hastings | Rivoli | May 9-10 |
| Hebron | Majestic | May 20-21 |
| Holdrege | Sun | May 23-24 |
| Kearney | Empress | April 25-27 |
| Lincoln | Rialto | May 5-7 (second run) |
| Norfolk | Grand | April 11-13 |
| North Platte | Keith | April 20-21 |
| St. Paul | Elite | May 3-5 |
| Tecumseh | Moon | June 14-16 |
| **New Hampshire** | | |
| Lebanon | Opera House | May 2 |
| **New Jersey** | | |
| Newark | State | April 4 |
| Trenton | Orpheum | April 17-30 |
| **New Mexico** | | |
| Albuquerque | Pastime | April 26-30 |

(*Continued on page 293*)

# BUFFALO




## Buffalo "Built-to-Order" Apparatus is Ideal for Small Towns and Suburban Communities

The apparatus pictured above is a typical Buffalo job. Triple Combination Pumper equipment mounted on a Larrabee chassis. Pump guaranteed to deliver 350 gal. per min. at 120 lbs. pressure. Two 40 gal. chemical tanks and 1000 ft. hose body.

CROTON-ON-HUDSON is only one of many suburban communities that have purchased Buffalo apparatus. Small towns, suburban and rural communities everywhere are rapidly turning to us for apparatus because we specialize in just the type of equipment they need.

We build-to-order dependable, moderate-cost apparatus that will exactly meet the requirements of the town or community making the purchase. Our experienced fire apparatus engineers work right with the local fire officials in making plans for the new apparatus. The apparatus is then built of the finest materials available according to these plans by trained workmen in our large and thoroughly up-to-date plant.

This method is proving so successful that Buffalo apparatus is making-good wherever placed in service, our business increases steadily and fire officials, of their own accord, are constantly writing us glowing letters of praise of their Buffalo equipment in service.

Regardless of whether or not you are considering new apparatus at this time, we would like you to know all about the Buffalo method of doing business and about modern built-to-order fully-guaranteed Buffalo apparatus.

***May We Send You Complete Information?***

**BUFFALO FIRE APPLIANCE CORP.**

**Main Office and Factory, Buffalo, N. Y.**

# BUFFALO

# Now Ready - - - -
# A Code-Blowing Fire Siren

1-3 2-7 1-6 2-1 1-4 2-3

*Designed Exclusively for Code Signaling — with a Voice That Can be Heard for Miles — Always!*

*Of Course*
***It's a Sterling!***

*The Crowning Achievement of Twenty-five Years of Specialization in Making the Best Fire Sirens*

The fastest, surest and most durable code siren made! Operated manually, by central station transmitter, or by box system. Competitive tests welcomed.

*Write for Full Information*

**THE STERLING SIREN FIRE ALARM CO., INC.**
**61 ALLEN ST. ROCHESTER, N. Y.**

Mack

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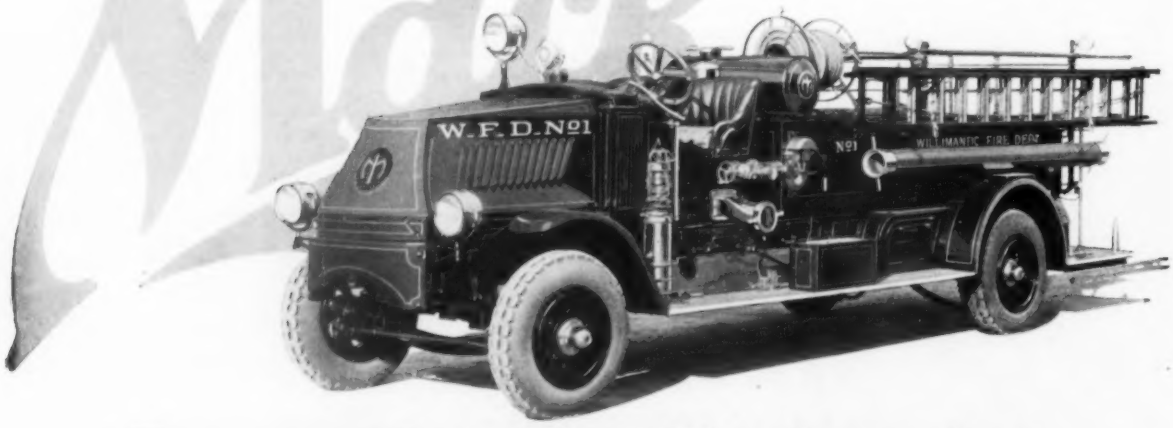


# Progressive Fire Engineering

PICTURED above is a MACK standard 1000-gallon Triple Combination Pumper with a 100-gallon booster tank located forward.

Adhering to its policy of anticipating the newest departures in automotive fire engineering, MACK has in the above instance centralized all controls for the purpose of quick and handy one-man operation.

Clutch control, gas throttle, shifter lever for the pump transmission, oil, pressure and vacuum gages, and engine tachometer are all centered on the left hand side of the machine in such a manner that the operator can tell exactly what is going on from the one location.

The full line of MACK Fire Apparatus includes motors of either 4 or 6 cylinders and pumping engines with capacities ranging from 350 to 1000 gallons per minute. Send today for complete descriptions and information.

MACK TRUCKS, INC.
INTERNATIONAL MOTOR COMPANY
25 Broadway New York City

One hundred and four direct MACK factory branches operate under the titles of: "MACK-INTERNATIONAL MOTOR TRUCK CORPORATION", "MACK MOTOR TRUCK COMPANY", or "MACK TRUCKS OF CANADA, LTD."

| CITY | THEATRE | DATE |
|---|---|---|
| **New York** | | |
| Albany | Leland | April 18-23 |
| Brockport | Strand | April 5-7 |
| Dunkirk | Capitol | April 24-27 |
| Elmira | Strand | May 2-4 |
| Fredonia | Wintergarden | May 25-26 |
| Geneva | Regent | April 3-6 |
| Hamburg | Palace | Aug. 3-5 |
| Johnson City | Goodwill | May 6-7 |
| Le Roy | Family | March 29-31 |
| Nunda | New Academy | May 30-June 1 |
| Pearl River | Pearl River | March 28-31 |
| Perry | Auditorium | April 13-14 |
| Warsa.w | Oatka | May 4-5 |
| **North Dakota** | | |
| Bismarck | Eltinge | May 5-7 |
| Fargo | State | April 18-20 |
| Fargo | Garrick | April 18-20 |
| Mandan | Palace | May 13-14 |
| **Ohio** | | |
| Ada | Odeon | May 18-19 |
| Bedford | Bedford | May 10-11 |
| Bucyrus | Southern | May 10-12 |
| Cambridge | Colonial | June 13-15 |
| Celina | Lakona | May 2-3 |
| Chardon | Chardon | April 5-6 |
| Chillicothe | Majestic | May 12-14 |
| Columbus | Fifth Avenue | April 20-21 |
| Crooksville | Majestic | May 8-9 |
| Delaware | Star | May 16-18 |
| Delta | Lyric | April 14-16 |
| Dunkirk | Capitol | April 24-27 |
| Geneva | Liberty | May 25-26 |
| Girard | Mock | May 10-11 |
| Huron | Huron | June 12-14 |
| Ironton | Marlowe | June 17-18 |
| Lorain | Park | May 1-3 |
| Marysville | Strand | May 9-10 |
| New Lexington | Grand | May 1-2 |
| Salem | State | May 30-June 1 |
| Tippecanoe | Majestic | May 19-20 |
| Urbana | Clifford | March 28 |
| Wellston | Virginia | May 15-17 |
| Youngstown | Park | April 11-16 |
| **Oklahoma** | | |
| Alva | Liberty | May 16-18 changed from May 23 |
| Hennessey | Electric | April 5-7 |
| Hobart | Palace | May 3-4 |
| Lindsay | Dixie | March 27-28 |
| Okemah | Jewel | April 25-26 |
| Purcell | Rex | April 13-14 |
| **Oregon** | | |
| Portland | Liberty | March 25 |
| **Pennsylvania** | | |
| Carlisle | Orpheum | April 4-6 changed from March 7-9 |
| East Stroudsburg | Plaza | April 11-13 |
| Hollywood | Pottsville | May 9-12 |
| Jeanette | Eagle | April 18-20 |
| Johnstown | Victoria | June 20-22 |
| Kurtztown | Strand | April 8-9 |
| Lewiston | Pastime | April 25-27 |
| Nazareth | Broad | March 30-31 |
| Pittston | Roman | May 5-7 |
| **South Dakota** | | |
| Elk Point | State | April 29-30 |
| Madison | Lyric | May 6-7 |
| Milbank | Bentley-Grand | June 8-10 |
| Mitchell | Metropolitan-Lyric | May 5-7 |
| Northville | Legion | June 3-4 |
| Pierre | Bijou | June 8-9 |
| Sioux Falls | State | April 21-23 |
| Webster | Lyric | April 29-May 1 |
| **Tennessee** | | |
| Bemis | Y. M. C. A. | May 14 |
| Crescent City | Y. S. A. | March 25 |
| Memphis | Lamar | June 1-2 |
| Selmar | Famous | Aug. 16 |
| Whiteville | Hi School | July 8 |
| Winchester | Riveria | April 11-12 |
| **Texas** | | |
| Beaumont | Liberty | April 2-6 |
| Beaumont | Tivoli | April 2-6 |
| Beaumont | Peoples | April 2-6 |
| Orange | Strand | April 24-25 |
| Pamapa | Crescent | May 25-26 |
| Port Arthur | Peoples-Strand | April 3-5 |
| Texarkana | Strand-Hippodrome | June 10-11 |
| **Virginia** | | |
| Blacksburg | Lyric | June 24-25 |
| Charlottesville | Jefferson | May 9-10 |
| Christiansburg | Wilmont | June 6-7 |
| East Radford | Dreamland | June 17-18 |
| Berkeley | Rex | May 30 |
| Farmville | Eaco | June 13-14 |
| Hopewell | Marcelle | April 18-20 |
| Lambert's Point | Apollo | May 31 |
| Newport News | Imperial | April 18-23 |
| Norfolk | Ghent | June 1 |
| Orange | Wilbur | May 26-30 |
| Portsmouth | Colony | May 9-10 |
| Pulaski | Dalton | May 17-18 |
| Tacoma | Rialto | March 26 |
| Winchester | Empire | May 9-10 |
| **West Virginia** | | |
| Bluefield | Colonial | April 6-7 |
| Clarksbourg | Opera House | April 7-9 |
| Keystone | Palace | March 29-30 |
| Keyser | Music Hall | June 13-14 |
| Kimball | Rialto | March 31-April 1 |
| Parkersburg | State | April 4-6 |
| Piedmont | Opera House | June 2-3 |
| Williamson | Cinderella | May 9-10 |
| **Wisconsin** | | |
| Barron | Majestic | June 15-17 |
| Beaver Dam | Davidson-Odeon | May 4-6 |
| Clintonville | Grand | April 17-19 |
| Eau Claire | State-Wisconsin | May 3-5 |
| Menominee | Falls | May 22-24 |
| Marshfield | Adler | May 31-June 2 |
| St. Croix Falls | Bide-a-Wee | May 10-12 |
| Stevenls Point | Majestic | April 30-May 1 June 7-8 changed from May 16-17 |
| Tomhhawk | Lyric | April 17-19 |
| Waupaca | Palace | May 31-June 2 |
| Waupun | Waupun | |

## New Rules of the New York Fire Department

(*Continued from page 279*)

SEC. 258. The information contained in records shall be complete and accurate, and when kept in books it shall be systematically classified and arranged under proper headings and adequately indexed.

SEC. 259. The Company Journal shall be an accurate and complete record of all matters affecting the interests of the Department and the administration of a company. In it shall be entered:

1. The company roster.
2. Complete details of each roll call.
3. The names of members on duty in each platoon.
4. The names of absentees from quarters, stating whether they are excused or absent without leave.
5. All leaves of absence and their character.
6. A record of injuries received by any one while on duty with the company.
7. The time of receipt of alarms for fire, their character, any failure of the signal system to function properly, what apparatus responded, the location of fire, and the time of return to quarters.
8. Supplies received and materials delivered; kind and quantity of such and by whom received and delivered.
9. The time at which any member of the Department, on duty, entered or left quarters.
10. The receipt of all general or special orders, circulars, communications, applications for permits, reports of violations and other forms, and notices from Headquarters or from members of the Department. Each document shall be identified separately in the entry, so as to constitute a record.
11. All telephone messages received and sent, giving complete details.
12. Assignments, transfers, resignations, promotions, suspensions, reprimands, discharges or deaths of members attached to the company.
13. A record of all drills, training and instruction.
14. Dates of changing hose.
15. Date and nature of any inspections.
16. All movements of apparatus in addition to those caused by answering alarms.
17. The time at which any apparatus in quarters was placed out of service or in service, with details concerning the disposition of spare apparatus.
18. All other matters of actual or possible interest appertaining to the company, to quarters, members or equipment.
19. Entries not routine in character shall be made in red ink.
20. One line shall remain vacant between each individual entry.

SEC. 260. There shall be kept, in the office of each company quarters, a card index of all members of the uniformed force residing in the district.

This record shall be consulted, and all members concerned notified, immediately following the receipt of a re-call signal.

S. O. 142—1920 and S. O. 42—1921 shall be followed in connection with this record.

(See "Reports"—Members changing platoons.)

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**Syracuse, N. Y., Receives New Ladder Trucks**—Two 85-foot aerial ladder trucks were delivered to Syracuse, N. Y.

**Work Starts on Birmingham Fire Alarm**—Work has started on the extension of the fire alarm system in Birmingham, Ala.—it will cost $85,000.

**Wisconsin Has Bill for Outside Runs**—A bill has been introduced in the Wisconsin legislature that will enable fire departments to make outside runs. The bill permits an extension of fire department service to residents in outlying territory, and makes provision for the payment of the support of the local fire department covering such extended territory.

# OF INTEREST TO VOLUNTEER FIRE DEPARTMENTS

## Calling Firemen by Phone

In the February issue of FIRE ENGINEERING, there appeared a letter by Chief Edward Hinkley of Snohomish, Wash., in reference to calling firemen by telephone. Since publishing the letter, the editors have received communications from some of the readers offering suggestions on how to solve the problem.

*To the Editor:*

In your February 23 issue you have a letter from Chief Hinkley of Snohomish, Wash. His condition in reference to fire alarm service is similar to that of Cotuit, Mass.

The local manager of the telephone company here was kind enough to order the operators not give information regarding the location of fires to persons other than firemen when the fire siren has sounded. Subscribers soon got tired of calling central to ask the location of a fire as the operator would say, "We are not allowed to give any information." The operators watch for the firemen's lines and give them the preference. Our location is such that it is not necessary to call the exchange as the fire house is centrally located and they report to the house immediately.

Very truly yours,
ORMAND DOTTRIDGE

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*To the Editor:*

In your issue of February 23 under the head of correspondence, I think that Chief Hinkley of Snohomish, Wash., has asked the wrong question. I think his city officials should come forward and support his work by purchasing an up-to-date fire alarm system. They shouldn't expect the telephone company to act as their fire alarm system.

I live in a town about the size as theirs and it has had a Gamewell fire alarm system for about twenty years. Wake up, Snohomish, and install a real fire alarm system! Your firemen can not put out fires until they know where it is, and if there is one. The telephone is too damn slow.

Yours truly,
A. P. WOODWARD,
Chief of Fire Department, Danielson, Conn.

---

*To the Editor:*

In our city, which consists of ten thousand people and which has a volunteer fire department of seventy-five men, there is no fire alarm system other than the bell and telephone. Some years ago the general public used to rush to the telephone to get the location of a fire whenever the bell was sounded, and finally the telephone company would not give out any information at all.

In order to get this service for the firemen, a code was adopted. This plan has given very good service. When an alarm is turned in, a fireman can go to any phone and give the operator the code letters and thereby obtain the location of the fire. The letters F. D. could be adopted for this plan.

Should the code become known to some outside of the department, it can be changed at the next meeting of the fire department. I hope that this information may be of some service.

Yours truly,
HENRY SCHULZ,
Chief of Fire Department, Ashland, Ohio.

---

*To the Editor:*

In reference to the problem of calling firemen by telephone, we have a system in Ludington, Mich., of calling firemen by telephone that has been in use for several years and which is satisfactory.

There are two volunteer fire companies with a total membership of twenty-seven men. Each firemen has a phone in his house and on the switchboard at the telephone exchange are plugs arranged in four groups with seven phones on the first three groups and six on the last one. Directly over each group is a switch which when thrown rings all the phones in the group. The operator makes but four moves to call every fireman in the city. One long continuous ring is a fire and it is very seldom that a fireman finds it necessary to call central.

If a man starting out from his house can not locate the fire by reflection, he reports to the fire station and gets the information there. I hope that this may be of help to Chief Hinkley.

Very truly yours,
H. L. WILLIAMS,
Secretary, Michigan State Firemen's Association

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*To the Editor:*

We have a paid and volunteer fire department with the telephone system in the station and also connecting the call men.

In the station we have a separate alarm system along with the telephone and whenever one asks for the station number the operator inquires if there is a fire. Should there be one, the location is given to the operator.

The operator rings the fire alarm bell in the station so that the paid firemen there will know that there is a fire. As soon as this call is given the operator calls all the call-men on the telephone either at their home or at the place where they work, depending of course, whether the alarm is during the day or night. This is done before answering calls from curiosity seekers.

The names and telephone numbers of the call-men are on a card which is hung on the switchboard in front of the operators. By means of the local papers educate the public to refrain from using the telephone for a few minutes after the fire alarm has sounded. You will find that this is a good way to overcome the trouble of everybody calling at the time when the operators are the most busy.

Our city has a population of six thousand and we have a department of three paid men and fifteen call-men. This system works very well and may be used where a town has a straight volunteer fire system.

Very truly yours,
C. E. UNDERWOOD,
Chief, Manistique, Mich.

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## Barbers Not Keen on Firemen Rivals

Whether prompted by economy or other motives, is not known, but the firemen of Detroit, Mich., often cut each others' hair. While there is nothing revolutionistic in such practice or a means of breaking the strong walls of the various trade unions, yet the secretary of the Associated Master Barbers of American, Detroit branch, wants this practice stopped because the firemen have no barber's license. He protested to Harry Brabyn, secretary of the Board of Fire Commissioners.

Martin J. Flaherty, an East Boston, Mass., reader of FIRE ENGINEERING has written to the Boston *Post* giving his views on the situation. The letter follows:

*To the Editor of the Post:*

"In the *Post* today, I read about some barbers in Detroit who protested against some of the Detroit firemen for cuting each other's hair.

"When firemen, not only in Detroit but in other cities are not receiving compensation for acting as barbers on one another in their spare time, whose business is it but their own.

"These protesting barbers would probably say the same of doctors, dentists, tailors, porters, bootblacks, etc. They would probably protest against taking a cough drop without consulting a doctor, cleaning their own teeth, pressing their own pants, cleaning their own shops or shining their own shoes.

"Instead of criticizing the firemen who are underpaid, they should protest against the appearance of their worst enemy—the House of David gang."

---

**Salt Lake City to Have New Pumper**—A 1,000-gallon pumper, equipped with chemical tanks, will be purchased with the fund provided by the authorities of Salt Lake City, Utah. When received, the pumper will be placed in the central fire station.

**Des Moines Firemen Lose Court Fight**—Seventeen city firemen of Des Moines, Ia., who have been fighting in three courts for the past ten months to regain their places in the fire department, which they lost because of the reduction in fire force, have lost the last stage in the legal battle. At the time the trouble started twenty-two firemen were dismissed on a blanket order. Five did not contest the action, but the other seventeen immediately commenced legal action. The city's plea was that it had the right to dismiss employees if funds were not at hand with which to pay them.

*Atlas Flour Mill Fire at Milwaukee, Wis., Dec.* 10, 1926

D-711-L

# Fifteen Hours Without Stopping

**To be exact, 15 hours and 30 minutes is the recorded performance of the Milwaukee Built Pumper No. 1 at the Atlas fire according to Fire Chief Peter Steinkellner. Over 500,000 gallons of water were pumped from a cistern, lifted thru a double suction and delivered thru two 2½ inch lines, one 800 feet, the other 900 feet long and siameesed to a 1½ inch tip. The average pressure during the run was 165 pounds.**

*Capt. John Burke, who is as proud of the performance of his Waukesha 6 cylinder Fire Pumper Engine as we are, supplied the information about Pumper No. 1's performance. Asst. Engineer Joseph Gromowski, who had charge of it during the fire, said: "We had no trouble during the run and the engine was wide open all the time. We used only 1½ gallons of oil and 120 gallons of gasoline." Milwaukee has nine Waukesha engines in use now. If you would like to know why they give such good performance write for Bulletin No. 539 on Pumper Engines.*

D-714-L

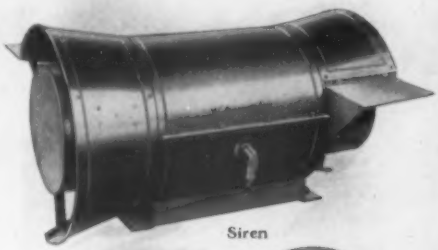
*FIRE EQUIPMENT DIVISION*

**WAUKESHA MOTOR COMPANY**

**Waukesha** 956 St. Paul Ave. **Wisconsin**

*Eastern Sales Office* *Aeolian Building, 33 W. 42 nd Street* *New York City*

# Holtzer-Cabot Fire Alarm Systems for Small Towns



Siren

## Electric Sirens

Take the place of the antiquated bell or whistle for use in small towns as a fire alarm signal.

Will sound a general fire alarm or can be coded for location.

The Holtzer-Cabot Siren with its peculiar penetrating tone gives an understandable call for help.

It has a sound penetration radius of about two miles in ordinary weather conditions.

Write now for specifications.

"M D"
Fire Alarm Station

Fire Alarm Control Panel in Case

*Manufacturers of Signaling Systems for over 50 years*

THE HOLTZER-CABOT ELECTRIC COMPANY

125 Amory Street, Boston, Mass.
6161-65 So. State Street, Chicago, Ill.

# Shuredry Salvage Covers

**COST LESS—**
**WEIGH LESS—**
**MORE EASILY HANDLED**

Chief Boyd, of the Knoxville, Tenn., Fire Department, has used "Shuredry" Salvage Covers for eight years. He says: "They are *waterproof, not affected by the weather, easy to handle, and altogether the most satisfactory covers we have ever used.*"

They do not freeze in winter, nor become tacky in summer. They are not subject to spontaneous combustion, nor to cracking where folded. One man can carry four up a ladder at one time.

Made in standard sizes. Write our nearest plant for samples and prices.

**FULTON BAG & COTTON MILLS**
*Manufacturers since 1870*
Atlanta, New Orleans, Brooklyn, St. Louis, Dallas, Minneapolis

# BADGES
*of Every Description*

QUALITY GUARANTEED

*Right Prices*
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WE MAKE THE DURABLE
**"ROSS" HELMET**

OUR LATEST CATALOGUE AND PRICE LIST WILL GLADLY BE SENT ON REQUEST.

**EVERSON-ROSS CO.**
88 Chambers St., New York

# FIRE DEPARTMENT ACTIVITIES

**Bath, Me., Department Motorized**—Bath, Maine, now has a completely motorized fire department.

**Ft. Wayne, Ind., Has Pumper**—An Ahrens-Fox pumper has been delivered to Fort Wayne, Ind.

**Erie, Pa., Abandons Plan to Erect Station**—For the present year at least, Erie, Pa., has abandoned the plan to erect a new fire station.

**New Bloomfield, Pa., to Have Fire Station**—A new fire station will be erected in New Bloomfield, Pa., to house the new fire apparatus which will be purchased soon.

**Reedsburg, Wis., Has Rural Protection**—The farmers about Reedsburg, Wis., have purchased a truck on which is mounted a forty-gallon chemical tank and other fire-fighting equipment.

**Lexington, Ky., May Move Station**—A plan has been suggested in Lexington, Ky., to sell the present fire station and to build a new building in a less congested section of the city.

**Decatur, Ill., Has New Bungalow Station**—The second of the bungalow fire stations erected in Decatur, Ill., was formally opened for public inspection.

**Jackson, Ohio, to Purchase Pumper**—Jackson, Ohio, has contracted for a 800-gallon Ahrens-Fox pumper. The apparatus cost $13,000.

**Centre College Fraternity Men Escape Fire**—Thirteen students at Centre College, Kanville, Ky., members of a fraternity, escaped injury when fire destroyed their house.

**Elgin, Ia., Plans Farm Fire District**—Officials of the Elgin, Ia., fire department met with the farmers of the district to consider plans for the formation of a farm fire district.

**Altoona, Pa., to Have New Station—**Plans are being made for a fire station to be erected in Altoona, Pa. The two story fire station will have three entrances for fire apparatus.

**Ft. Dodge, Completes Inspection of Business Center**—Fort Dodge, Ia., has completed its quarterly inspection of the mercantile district. Chief Callahan stated that violations that were reported at the last inspection were remedied this time.

**New Car for Evansville, Ind., Chief**—Evansville, Ind., will purchase a six-cylinder sedan for the use of Chief Grand, and Assistant Chief Penn will receive the car now being used by the chief.

**Wyandotte, Mich., Chief Re-instated**—George Gaisson, chief of the Wyandotte, Mich., department has been re-instated by the fire commissioner who stated that the secretary of the commission had acted wrongly in suspending the chief.

**Independence, Kans., Wants Platoons**—A petition is being circulated in Independence, Kans., to vote in the April elections on the proposition for the establishment of a platoon system for the fire department.

**Danbury, Conn., Purchases Pumper**—Danbury, Conn., has purchased a 400-gallon Seagrave pumper equipped with a sixty-gallon booster tank. It is similar to the pumper purchased last year by the city.

**Chief Hoy of Norristown Seeks Election**—Several associations are campaigning for the re-election of Chief Peter V. Hoy as chief of the fire department in Norristown, Pa. Mr. Hoy was first elected chief in 1889, and he has been elected continuously ever since.

**Berkeley, Cal., to Fight Three-Platoon Bill—**Berkeley, Cal., has voiced opposition to the bill sponsored by the California State Firemen's Association for a three-platoon system. A committee from the city will appear before the legislature in opposition to the bill which the city claims will force the three-platoon system on California cities.

**Eastchester, N. Y., Firemen Want Chief Elected**—The volunteer firemen of Eastchester, N. Y., are dissatisfied with the move of the Board of Fire Commissioners to change the office of fire chief from an elected one to an appointive one. The firemen are circulating a petition asking the board to rescind the order. The trouble began when it was rumored that a New York veteran would be appointed chief.

**Augusta Purchases Ahrens-Fox Pumper**—The city of Augusta, Ga., has recently purchased an Ahrens-Fox 750-gal. triple combination car, which will be placed in service in Fire Station No. 5. This will be the first piece of this make of apparatus purchased by the city. Chief Kennedy has recommended the buying of another pumper, and it is expected that the authorities will act within a month in the matter.

**Milwaukee Firemen Seek Increase**—A study is being made by Milwaukee, Wis., of the fire department salaries of the various cities. It has been pointed out that eight cities larger than Milwaukee pay higher salaries as well as forty cities that have a smaller population. The present maximum pay for firemen is $2,040 a year. A resolution has been presented to permit a vote on the question in the April elections.

**Work to Start on Boston Central Station**—Work will start in April on the new central fire station for Boston, Mass. It is expected that the building which will cost $210,500 will be completed by November 1. The station will be three stories high and will have four floors of fire apparatus—the apparatus floor will be free from columns. The second floor will have quarters for Chief Sennot and the officers while the third floor will have a large recreation hall, study, dining room and dormitories. There will also be a roof garden.

**Portland Passes $735,000 Bond Issue**—Portland, Ore., has passed a $735,000 bond issue for the fire department. Of this, $300,000 will be used to replace the steam propelled fire boats with three gasoline motor driven boats. The contracts for the building of the boats have been let. In addition, five new stations will be built, three repaired, a new central station erected for the fire alarm system, construction of five hundred fire alarm boxes, purchase of five 1,000-gallon pumpers, one 85-ft. aerial ladder truck, one squad wagon and the building of one chemical truck. L. G. Holden is chief of the fire department.

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## Massachusetts Fire Chiefs' Club Meets

The March luncheon and meeting of the Fire Chief's Club of Massachusetts was held in the Elks' Hotel on Tremont Street, Boston, on March 16. Chief Patrick J. Hurley, of Holyoke, presided.

The principal speaker was Chief Edward F. Dahill, of New Bedford, who described his smoke ejector and several other interesting devices for use in fire fighting. Seated at the head table were Chief Hurley, Chief Dahill, Ex-Chief A. Howard Fiske, of Framingham, secretary; Ex-Chief Walter Peirce, of Arlington, assistant secretary; Timothy C. Murphy, assistant state fire marshal; and Chief Edward Stone, of Ludlow.

Announcement was made of the election to membership of Chief Thomas Almond, of Central Falls, R. I. It was voted to contribute the sum of $100 to the memorial fund being raised for the benefit of the family of the late Chief Robert Browning, of Central Falls.

A letter was read from Chief Thomas H. Qualey, of Medford, calling attention to certain matters relating to fire prevention and suggesting reforms in the matter of insurance. He believes that the fire chief and building inspector should have the right to approve or cancel insurance and that insurance adjustments should be first approved by the fire chief.

Assistant State Fire Marshal Murphy told of the new fire prevention bill which has now been referred to the next legislature. Chief Daniel F. Sennott, of Boston, announced the opening date for the showing of "The Fire Brigade" at Loews State Theatre. He invited the chiefs to attend the initial performance on March 21 as his guests.

Among the chiefs taking part in discussion on various subjects were Chief George L. Johnson, of Waltham; Chief James M. Casey, of Cambridge; and Chief Fred Leonard, of Taunton. It was voted to send a letter of sympathy to Ex-Chief Bunker, of Cambridge, who is now ill in California.

After explaining his "smoke eating" machine which was given a successful test in actual service at a recent New Bedford fire, Chief Dahill showed and described two new devices of his own pattern. One of these is a long pipe with Conran nozzle for use in fires under roofs and in cock-lofts and the other is a bundle of old tire chains fastened together and attached to another chain which by means of pulleys on a pole can be lowered and jerked about in a chimney to dislodge soot. "The Dahill Chimney Sweep" is the name of this latter mechanism. It attracted much favorable comment from the chiefs present at the meeting.

Discussion of booster tanks and the legality of cities and towns paying convention expenses closed the meeting.

HARRY BELKNAP.

## CONVENTION DATES

May or June—SOUTH CAROLINA STATE FIREMEN'S ASSOCIATION. 22nd Annual Convention, Darlington, S. C., date at pleasure of Convention City. Secretary, R. S. Hood, Sumter, S. C.

May 3-4—SOUTH DAKOTA ASSOCIATION OF FIRE CHIEFS. Annual Convention, Brookings, S. Dak. Secretary, Chief C. M. johnson, Rapid City, S. Dak.

May 9-12—NATIONAL FIRE PROTECTION ASSOCIATION (International). 31st Annual Meeting, Congress Hotel, Michigan Ave. and Congress Street, Chicago, Ill. Secretary, Franklin H. Wentworth, 40 Central St., Boston (9), Mass.

June 1-2—INSTITUTION OF FIRE ENGINEERS (British). 4th Annual Conference, Liverpool, England. President, Firemaster A. Pordage, Edinburgh, Scotland. Interim Secretary, Miss M. B. Calder, Edinburgh Fire Brigade.

June 7-9—OHIO FIRE CHIEFS' ASSOCIATION. 10th Annual Convention, Mansfield, Ohio. Secretary, Chief Philip J. Harty, Fire Department, Youngstown, Ohio, Sheet and Tube Company.

June 7-9—SOUTH DAKOTA FIREMEN'S ASSOCIATION. Annual Convention, Pierre, S. Dak. Secretary, J. J. Waltner, Freeman, S. Dak.

June 8—NORTHWEST ARKANSAS FIREMEN'S ASSOCIATION. Annual Convention, Springdale, Ark. Secretary-Treas., F. M. Brock, Bentonville, Ark.

June 14-16—TEXAS STATE FIREMEN'S ASSOCIATION. Annual Convention, San Antonio, Tex. Secretary. Olin Culbertson, Hillsboro, Tex.

June 16-18—PROVINCIAL FEDERATION OF ONTARIO FIREFIGHTERS. Annual Convention, Windsor, Ont., Can. Secretary-Treasurer, David H. Lamb, 132 Bellevue Ave. (2) Toronto.

June 17-19—WISCONSIN STATE FIREMEN'S ASSOCIATION. 40th Annual Convention, Baraboo, Wis. Secretary, E. Philip Mueller, Jefferson, Wis.; State Organizer, Chief H. H. Niemeyer, Portage, Wis.

June 17-20—SIX COUNTY FIREMEN'S ASSOCIATION. Annual Convention, Sunbury, Pa.

June 21-23—FLORIDA STATE FIREMEN'S ASSOCIATION. Annual Convention, Hollywood, Fla. Secretary, Chief F. C. Pfaender, Winter Haven, Fla.

June 21-23—HUDSON VALLEY VOLUNTEER FIREMEN'S ASSOCIATION. 38th Annual Convention, Poughkeepsie, N. Y. Secretary, Chief Chris W. Noll, Fire Department, Poughkeepsie.

June 21-23—KENTUCKY STATE FIRE CHIEFS' AND FIREMEN'S ASSOCIATION. 9th Annual Convention, Owensboro, Ky. Secretary-Treasurer, Capt. S. G. Render, 303 Speed Bldg., Louisville, Ky.

June 21-23—NEW ENGLAND ASSOCIATION OF FIRE CHIEFS. 5th Annual Convention, Congress Hotel, Portland, Me. Secretary, Chief John W. O'Hearn, Watertown, Mass. For reservations address Geo. F. Cobb, Traffic Manager, 774 Albany Street, Boston, Mass.

June 21-24—THIRD SHORT COURSE IN FIRE PREVENTION. To be held at University of Illinois, Urbana. Address, C. E. Palmer, 401 Engineering Hall, University of Illinois, or State Fire Marshal John G. Gamber, Springfield, Ill.

June 27-29—MICHIGAN STATE FIRE CHIEFS' ASSOCIATION. Annual Convention, Bay City, Mich.

June 27-29—MICHIGAN ASSOCIATION OF FIRE DEPARTMENT CHIEFS. Annual Convention, Bay City, Mich. Secretary, Chief Frank Ford, Highland Park, Mich.

July 12-14—MICHIGAN STATE FIREMEN'S ASSOCIATION. 53rd Annual Convention, Lansing, Mich. Secretary, H. L. Williams, Luddington, Mich.

July 19-23—SOMERSET COUNTY VOLUNTEER FIREMEN'S ASSOCIATION. Annual Convention, Rockwood, Pa. Secretary, J. R. Shanks, Rockwood, Pa.

July 25-28—DOMINION ASSOCIATION OF FIRE CHIEFS. 19th Annual Convention, Hull, Quebec. Secretary, Chief James Armstrong, Kingston, Ont.

August—IDAHO STATE FIREMEN'S ASSOCIATION. Annual Convention, Wallace, Idaho, tentative date, last week of August, to be decided later. Secretary, Willard Adams, Rigby, Idaho.

Aug. 1-2—WASHINGTON STATE ASSOCIATION OF FIRE CHIEFS. Annual Convention, Chehalis, Wash. Secretary, Chief H. S. Jenkins, Bellingham, Wash.

Aug. 4-6—PACIFIC COAST ASSOCIATION OF FIRE CHIEFS. 34th Annual Convention, Portland, Ore. Secretary, State Fire Marshal Jay W. Stevens, 1014 Merchants' Exchange Bldg., San Francisco, Cal.

Aug. 6—CALIFORNIA STATE ASSOCIATION OF FIRE CHIEFS. Annual Convention, Seattle, Wash. Secretary, Chief William Cooper, Richmond, Cal.

Aug. 7-8—OREGON STATE FIRE CHIEFS' ASSOCIATION. 8th Annual Convention, Portland, Ore. Secretary, Thomas Coates, Tillamook, Ore.

Aug. 9-11—CUMBERLAND VALLEY VOLUNTEER FIREMEN'S ASSOCIATION. 26th Annual Convention, Western Port, Md. Secretary, C. L. Jacobs, Waynesboro, Pa.

Aug. 9-12—INTERNATIONAL ASSOCIATION OF FIRE CHIEFS. 55th Annual Convention, Portland, Ore. Secretary, Chief J. J. Mulcahey, Yonkers, N. Y.; Executive Secretary, State Fire Marshal Jay W. Stevens, Merchants' Exchange Bldg., San Francisco, Cal.; Chairman, Exhibit Committee, Chief Albert Herring, Murphysboro, Ill.

Aug. 14-16—NEW YORK STATE PERMANENT FIREMEN'S ASSOCIATION. Annual Convention, Elmira, N. Y. Secretary-Treasurer, Frank A. Emden, 1200 Lenox Avenue, Utica, N. Y.

Aug. 16-19—FIREMEN'S ASSOCIATION, STATE OF NEW YORK, and WESTERN NEW YORK VOL. FIREMEN'S ASSOCIATION. Joint convention of both associations, Niagara Falls, N. Y. Secretary, State Association, Fred A. Davis, Fort Edward, N. Y.; Secretary, Western N. Y. Association, Henry A. Clark, 21 Porter Avenue, Batavia, N. Y.

Aug. 24-26—VIRGINIA STATE FIREMEN'S ASSOCIATION. 41st Annual Convention and tournament, Alexandria, Va. Secretary, E. K. Landis, Pulaski, Va.

Aug. 24-27—CALIFORNIA STATE FIREMEN'S ASSOCIATION. Annual Convention, Stockton, Cal. Secretary-Treasurer, H. E. Strasser, 1171 Tenth Street, San Diego, Cal.

Sept. 7—DELAWARE STATE FIREMEN'S ASSOCIATION. 7th Annual Conference, Rehoboth Beach, Del. Secretary, Sam H. Carson, Dover, Del.

Sept. 7-8—MISSOURI STATE FIRE CHIEFS' ASSOCIATION. 5th Annual Convention, Kirksville, Mo. Secretary, District Chief J. T. Lynch, Kansas City, Mo.

Sept. 7-8—MISSOURI ASSOCIATION OF FIRE FIGHTERS, 2d Annual Convention, Kirksville, Mo. Secretary, M. J. Mulvoy, 3500 S. Grand Boulevard, St. Louis, Mo.

Sept. 12-14—ARKANSAS STATE FIREMEN'S ASSOCIATION. Annual Convention, Russellville, Ark. Secretary, H. D. Compton, Little Dock, Ark.

Sept. 13-15—ILLINOIS FIREMEN'S ASSOCIATION. 40th Annual Convention, Jacksonville, Ill. Secretary, Roy A. Alsip, Champaign, Ill.

Sept. 20-21—IOWA STATE FIREMEN'S ASSOCIATION. 50th Annual Convention and Anniversary, Emmetsburg, Ia. Secretary, E. E. Parsons, Marion. Ia.

Sept. 22-24—NEW JERSEY STATE FIREMEN'S ASSOCIATION. 50th Annual Convention and Anniversary, Atlantic City, N. J. Secretary, William Exall, Chamber of Commerce Bldg., Newark, N. J.

Sept. 23—NEW JERSEY STATE FIRE CHIEFS' ASSOCIATION. Annual Meeting, Atlantic City, N. J. Secretary, Fred A. Trowbridge, 17 South Street, Morristown, N. J.

Oct. 4-6—PENNSYLVANIA STATE FIREMEN'S ASSOCIATION. Annual Convention, Shamokin, Pa. Secretary, Charles F. Clark, 411 Bellevue Avenue, Wayne, Pa.

Oct. 17-19—KANSAS STATE FIRE CHIEFS' AND FIREMEN'S ASSOCIATIONS. 11th and 40th Annual Conventions, Kansas City, Kan. Secretary, Chief K. D. Doyle, Wamego, Kan.

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## Efficient Records for Fire Alarm Systems

(*Continued from page* 280)

instrument would function after being repaired. This form is printed on one side in black on canary paper, 8 inches wide by 5 inches deep, ruled in red and blue on both sides of the sheet.

### Maps and Circuit Books

In addition to routine records, maps at headquarters show the routing of the circuits and detail of the runs. Small circuit books for the location of trouble show the circuit layouts and the circuits in the pedestals. A sheet from one of these books is shown in Fig. 13. It is a blue print, 5½ inches by 8½ inches, perforated for loose leaf binding. It is headed "Box Circuit No. 14. 2-21-'27—AHD."

### Yearly Report Made

A yearly report is made of the operation of the Fire Alarm Department, which includes detail of circuit distribution, of service extension, of changes in aerial and cable distribution, additional boxes installed, etc.

### Blueprints of Underground System on File

Through the courtesy of the Southern New England Telephone Company we are able to have on file a full set of blueprints showing the underground system in New Haven. A duct is reserved for city use in every line of ducts laid by the telephone company, and this detailed information is of great value in getting exact measurements when ordering cable.

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**Fire Breaks Out in N. Y. Aquarium**—Fish in the Aquarium in New York city were startled to observe the arrival of firemen. A blaze which started in the carpenter shop was confined to that place and some of the offices were slightly damaged by smoke and water.

**Hose Wagon Hurled Against Philadelphia House**—A hose wagon of Philadelphia, Pa., was crashed into by another car, and it was forced over the curb into a dwelling at the corner. A woman who was seated at the window was injured by the flying particles of glass.

**Wisconsin Farmers to Purchase Fire Apparatus**—Farmers in the townships of Bristol, Sun Prairie, Windsor and Burke, Wisconsin, are raising $10,000 with which to purchase fire apparatus. The village fire departments in that locality are restricted to fight fires in the village.

**Fond du Lac., Wis., Must Consider Legal Point**—Whether a bid submitted by a company for supplying a pumper is legal without a certified check must be decided by Fond du Lac, Wis. An advertisement was inserted in the official city newspaper stating that bids must be accompanied by a certified check for a certain amount. In the specifications that were sent to some of the fire apparatus manufacturers, no mention was made of the check. Seven firms submitted bids, three of which sent certified checks. These three firms plan to hold the city to the letter of the advertisement.

DONTFEAR

Smoke and Fume Respirator

Firemen who enter buildings filled with smoke, fumes and poisonous gases will find the "DONTFEAR" an absolute protection. Hang around neck before putting on helmet, always ready for use.

Price $5. With airtight goggles and 5 extra canisters $7.50.

Gibbs-Wahlert Mask Co.

Factory: 386 Jay St., Brooklyn, N. Y.

Address communications to Station G, Box 168, New York City

S&M Special Lighting Equipment For Fire Apparatus S&M

Model No. 15 Drum Type Search-Lite. Reflector 10" dia. Powerful Handsome— Light projection 5000 feet.

Search-Lites
Spot-Lites
Red Safety-Lites
Pick-up-Lites

S & M Lites are nationally known on account of their high quality and their scientifically made reflectors.

The S & M Red Safety-Lite (originated by the S & M Lamp Co.) is rapidly coming into general use on Fire Apparatus. The intense flare of red light can be seen for several blocks and gives warning of approach of Fire Apparatus. Write for descriptive catalog.

S & M LAMP CO., (Inc.), 118 West 36th St., Los Angeles, Cal.

EVANS' UNIFORMS

have pleased Firemen for almost three-quarters of a century.

*Catalogue and quotations on request.*

GEORGE EVANS & CO.

132 North 5th St., Philadelphia, Pa.

Stands the Strain of Severest Fire Service

QUAKER fire hose is made with specially compounded rubber lining, and a solid woven cotton jacket.

A high-grade hose, strongly built to withstand high pressures and the hard service of Fire Departments.

*Write for descriptive pamphlet.*

QUAKER CITY RUBBER CO.

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BRANCHES

New York Chicago
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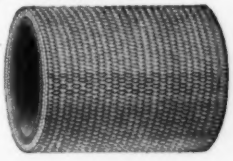


SOUTHWORTH

*Quality Fire Apparatus*

300 to 750 Gallon Triple Combination Pumpers, City Service Trucks, Combinations and Chemical Cars.

*Connections solicited throughout the East*

Southworth Machine Company

Fire Apparatus Division

*Address all correspondence to the Chelsea Office.*

*Sales Office* 52 Sagamore Ave., Chelsea, Mass.

*Telephone* Chelsea 2105

*Factory* Portland, Maine

MAXIM

FIRE APPARATUS

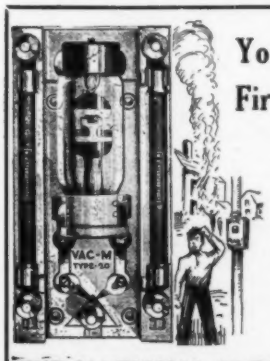
All Types — All Sizes

*Send for Complete Information*

MAXIM MOTOR COMPANY, Middleboro, Mass.

*Metropolitan Sales Agents:*

The Woodhouse Manufacturing Co., 35 Warren St., New York




You Must Protect Your Fire Alarm Instruments!

The minute your fire alarm goes out of commission your trained men and expensive apparatus become worthless. You must get the alarm. The safety of your city depends upon it.

Most Chiefs and Fire Alarm Superintendents, therefore, protect their alarm system against lightning and short-circuits with VAC-M Arresters. Do you? It pays in the long run!

*Full Details on Request*

THE NATIONAL ELECTRIC SPECIALTY COMPANY

TOLEDO .... OHIO.

THE INTERNATIONAL LINE includes a Speed Truck for 2000-pound loads and Heavy-Duty Trucks ranging from 3000 to 10,000 pounds, maximum capacities. Municipal equipment available for every purpose. 111 direct Company branches in the United States.

INTERNATIONAL HARVESTER COMPANY of America (Incorporated)

606 S. Michigan Ave Chicago, Ill.

INTERNATIONAL HARVESTER TRUCKS COMPANY

## *Fire Alarm Construction, Engineering and Repair Service*

Expert service in constructing and installation of all types of Fire Alarm Offices.

Engineering service to municipalities in drafting on new offices. Specifications drawn up. Surveys of equipment and supervision of installations. Repair Service.

Repairs made to all Fire Alarm Equipment, Police and Industrial Equipment. Switchboards re-wired in your own offices. Apparatus overhauled and maintained.

***Repairs and service in any part of the U. S.***

**Rates, Railroad transportation from Boston, Mass., and return. $10.00 per day for services.**

**E. W. KEIRSTEAD,**
*Fire Alarm Expert*
**26 High Street** **Boston, Mass.**

## *THE DENVER SIREN*

Now used in 43 of the United States, Canada and abroad.

Motor driven on any electric circuit.

***Write for Special Bulletin***

**Hendrie & Bolthoff Mfg. and Supply Co.**
**Denver — Colorado**

## Four Points of Superiority

***1. It fits the stream to the blaze.***

Little Blaze—Little Stream—Big Blaze—Big Stream. Size of stream can be varied by turning sleeve "A" and just enough water used to do the work—*This saves water damages.*

Watch for point 2 next issue.

**The Haley Improved Nozzle.**

*Full description on request.*

**L. P. Brown Machine & Tool Co.**
**Attleboro, Mass.**

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# SIRACODE

Whatever your Siren requirements, you'll find Siracode away ahead of anything on the market today.

Write for literature.

**SIRACODE SIGNAL CORP.**
*Formerly Heath Engineering Laboratories*
**354 Pine St., San Francisco, Cal.**

# HAHN

**Motor Fire Apparatus**

Write for literature and prices on our 250, 350, 500 and 750-gallon triple combinations, chemical and hose combinations and city service trucks.

**Hahn Motor Truck Co.,**
**Hamburg, Pa.**

"Pirsch" Builds Complete Line of Motor Apparatus

Let Us Submit Bids on Your New Apparatus

Catalogue No. 16 Now Ready! Send for it.

**PETER PIRSCH & SONS CO.**

**Since 1857**
**Kenosha, Wisc.**

## New Victor Gas and Fume Mask

Better Rubber. Longer Life. Better Fitted. Moulded to Fit the Face. Better Vision. Renewable Lenses. Better Air. Better Work. Low Prices. High Quality.

**Over 5,000 Victor Gas Masks in Service**

Full Line Fire Dept. Supplies and Equipment.

New 43 Edition Catalog on Request

**The Woodhouse Mfg. Co., Inc**
**35 Warren St., New York**

D. A. Woodhouse, Pres. and Gen. Mgr. George J. Kuss, Vice-Pres. and Treas.

## A Word to Our Readers:

DO you ever stop to think that every advertiser in these pages offers either a product or a service that has certain unique advantages which he believes will interest and be of value to you? Otherwise it wouldn't be worth his while to advertise.

Almost every page contains the offer of some product or service that you would find of value in your department. It will pay you to read the advertising pages as carefully as you do the editorial.

"The wise man is he who is always willing to learn." It will pay you to read the advertising pages carefully. THE PUBLISHERS.

# PROPOSED IMPROVEMENTS

**Hardy, Nuckolls Co., Nebr.**—Funds being raised for the purchase of a chemical truck to be used in Hardy and the farm community.

**Topeka, Shawnee Co., Kan.**—To erect a fire station in North Topeka. Joseph Waidelich, Chief of Fire Dept.

**Dover-Foxcroft, Piscataquis Co., Me.**—The purchase of a pumper by the town and the Water District is being discussed.

**Huntsville, Madison Co., Ala.**—City Council considering the purchase of a new piece of apparatus for the fire department here.

**Easton, Talbot Co., Md.**—New fire station to be erected at cost of $30,000 and new apparatus to be purchased at cost of $15,000.

**Dracut, Middlesex Co., Mass.**—Plans being made for the erection of a new fire station, installation of a new fire alarm system and the purchase of new fire hose. Address City Council.

**Winside, Wayne Co., Nebr.**—Funds to be raised for the purchase of a fire engine. Henry Nelson, recently elected chief of the fire department.

**Berlin, Camden Co., N. J.**—Independence Fire Company to erect fire station.

**New Rochelle, Westchester Co., N. Y.**—A new fire company has been formed here, and station will be built and truck purchased. Walter Jones, Chief.

**Ghent, Columbia Co., N. Y.**—Fire department raising funds for the purchase of a combination pumper and chemical car.

**Cleveland, Oswego Co., N. Y.**—Fire department planning to raise funds for the purchase of an electric fire siren. W. M. Gallagher, President.

**Westfield, Chautauqua Co., N. Y.**—At next election town to vote on a $13,000 bond issue for purchase of a pumper for the fire department.

**Starkweather, Ramsey Co., N. Dak.**—The erection of a new fire station is being planned here.

**Ashland, Ashland Co., Ohio.**—City Council to purchase a piece of apparatus for the fire department here.

**Locust Gap, Northumberland Co., Pa.**—An American-LaFrance truck was recently purchased for the fire department here.

**Archbald, Lackawanna Co., Pa.**—The East Side Hose Co., No. 4 Salem Street, is planning to purchase a new fire engine.

**Mount Joy, Lancaster Co., Pa.**—Funds are being raised for the purchase of a new combination pumper and chemical car.

**Gloucester City, Camden Co., N. J.**—The Highland Park Volunteer Fire Company raising funds for the purchase of a pumper for that section of Gloucester City.

**Riverbank, Stanislaus Co., Cal.**—Board of Trustees and C. G. Snyder, Chief of Fire Dept. announced that a new pumper will be needed for the fire department.

**San Marino (Mail Los Angeles), Los Angeles Co., Cal.**—Resolution passed that committee get tentative plans for building to house more fire apparatus. Cost of hook and ladder truck with pumping engine and emergency equipment will be ascertained.

**Valdosta, Lowndes Co., Ga.**—To erect and equip a fire station in the northern part of the city some time this year.

**Malden, Middlesex Co., Mass.**—Fire Commissioner Berg in his annual budget has recommended the purchase of a pumper for the fire department.

**Abington, Plymouth Co., Mass.**—At the annual town meeting an appropriation was made for the rebuilding of the fire alarm system and the purchase of new fire hose for the local fire department.

**Wyandotte, Wayne Co., Mich.**—City obtained site for erection of a new fire station.

**Allen, Dixon Co., Nebr.**—Volunteer fire department considering the advisability of purchasing fire apparatus. J. C. Gaughran, Chief of Fire Dept.

**Omaha, Douglas Co., Nebr.**—A new type of fire siren is needed an the fire apparatus, City Attorney Van Dusen believes.

**Gordon, Schuylkill Co., Pa.**—Citizen Fire Co. No. 1 have decided to purchase shirts, caps and badges.

**Bristol, Day Co., S. Dak.**—A new chemical truck is to be purchased for fire department here.

**Hoquiam, Grays Harbor Co., Wash.**—Chief Crawford urging that steps be taken toward the construction of a fire boat.

**Elm Creek, Buffalo Co., Nebr.**—Fire department considering the purchase of a chemical fire truck.

**Rye, Rockingham Co., N. H.**—City Council contemplating the purchase of a new chemical car for the fire department.

**Rocky Hill, Hartford Co., Conn.**—Plans are being made for the purchase of new fire apparatus for this city.

**Carlisle, Nicholas Co., Ky.**—City Clerk S. C. Vaughn instructed to advertise for bids for the installation of an electric fire alarm system to replace the present system.

**Lakewood, Ocean Co., N. J.**—Fire Commission considering the installation of a fire alarm system here.

## Proposals for Fire Hose

BOROUGH OF SADDLE RIVER,
BERGEN COUNTY, N. J.

Sealed bids will be received at the Boro Hall, Friday, April 1st, 1927 at 8.30 P. M. for 1,000 feet, more or less, of 2½" Double and Single Jacketed fire hose to withstand a pressure of 400 lbs. Standard Couplings.

Council reserves the right to reject any part or all bids.

JACOB O. ACKERMAN,
Mayor

Russell G. Ackerman
Boro Clerk
3-23

## Position Wanted as Fireman

Man with experience as fireman desires position in any city or growing town. Over ten years experience of practical fire fighting, serving as Captain of an Engine Company five years also as Secretary of a Department five years, alert, young and energetic, can give the best of references. Apply Box 138, % FIRE ENGINEERING, 225 W. 34th St., New York City. 3-9—3-23

When
In the Market
for equipment or supplies make your wants known through FIRE ENGINEERING. More bidders mean more competition and better satisfaction.

## FIRE MARSHAL BILL AGAIN BEFORE N. Y. LEGISLATURE

**Went Through Second Hearing and Will Now Appear Before Finance Committee—To Be Division of State Police**

Again the fire marshal bill is before the state legislature in New York for action, and having been read twice, it is waiting for action by the finance committee.

The bill provides for a bureau in the state police organization that shall be known as the bureau of fire prevention and which shall have a fire marshal at its head. He shall be assisted by deputy and assisting officers as determined by the superintendent of the state constabulary. In places where there is a fire district and a fire chief, he shall in accordance with the bill become assisting fire marshal and he shall be subject to the duties of a fire marshal.

The fire marshal and his deputies shall at least once a year make an inspection of all the buildings owned or controlled by the state. He is given the power to order the demolition of a building that in his opinion is dangerous in case of fire. The owner of a building may take an appeal from the opinion of the fire marshal, but if no appeal is taken and the fire marshal's order is not complied with, there is a penalty of twenty-five dollars for each day of neglect.

The fire marshal is to enforce and adopt rules and regulations for the sale and storage of gasoline, naphtha or other combustible or dangerous substances. The marshal must also assist at a fire and shall conduct investigations as to the causes of same.

The bill is known as No. 56, an act to amend the executive law in relation to the bureau of fire prevention.

## McNeely at Kansas City Seagrave Branch

George E. McNeely, formerly associated with the Dallas, Texas branch office of the Seagrave Corporation, has been placed in charge of the territory covered by the Kansas City office.

A. H. Wilson and J. G. Matheny, formerly in the Kansas City branch office, have severed their connection with the Seagrave Corporation.

## Barry at It Again

Cleveland may have its fire insurance key rate increased as the result of an order of Edwin D. Barry, safety director of Cleveland, Ohio, compelling fire apparatus to obey the red light traffic signal. Members of the fire insurance club in the city visited the safety director to obtain his views on this matter.

Just how some of the people there feel about the matter is best expressed by a circular issued by the Citizens' Vigilant Committee as follows:

"The famous Safety Director, Edwin Barry, noted for calling our city firemen, 'bums'—has now issued a famous order to the Fire Department, that in responding to alarms of fires, they must stop the same as any other vehicle on the Red Signal, even when the traffic officer at congested districts, is on the ground. The shrieking of fire sirens which clears the way according to Director Barry, does not alter the situation. Fire apparatus must stop on the Red Traffic Signal. This means that first alarm companies are compelled to stop from thirty seconds to a minute at each stop, depending on the length of the time the Red Signal is set at. On short run boxes, companies are required sometimes to stop as many as from five to eight times. What does this mean for second, third and fourth alarm companies? As the situation is at present, many first alarm fires now become second alarm fires due to the slowness of the responding of the fire department, due to the new traffic order.

"It is assumed by the Fire Department at all times when responding to alarms that both life and property are in danger. What would happen in the case of a calamity such as the recent moving picture theatre fire in Toronto, a hotel fire or such like, the Fire Department responding but coming to a dead stop at every Red Traffic Signal. It would seem that when all fire chiefs will agree that they count seconds in responding to alarms of fire, that the factor of saving of life and property is such a large item that the efficiency of the Fire Department is brought down so low that it becomes next to useless."

**Last of St. Louis Fire Horses Assigned Other Work**—St. Louis, Mo., will soon assign the twenty-six remaining horses in the fire department to work with the park mowing machines. At one time the city had three hundred horses, but at present, five stations have four horses each and six horses are kept in reserve.

# FALSE ALARMS

## UP TO DATE VERSION

When firemen arrived at a farm on the outskirts of Jackson, Mich., recently, they found a man seated on a stool in his yard milking a cow. Occasionally he glanced at the roof of his home where several shingles were burning.

When the bottom of the milk pail was well covered, he would seize it and run to the house, climb a ladder and pour the milk on the fire, and then he would dash back for a new supply. The cow's milk supply gave out about the time the fire decided to give up the fight.

"I was milking when I saw the fire and was so excited I didn't think about the water pump, I guess," was the only comment the lone fire-fighter made to the firemen composing his audience.—*The Fire Plug.*

---

How to prevent a fire—insult the janitor.—*Life.*

---

## PROPER TO THE LAST

A story is told of an intimate friend of Charles Dickens, the writer. He had a devoted servant who was most correct in everything he did. It was therefore astonishing that at a dinner, Henry spilled a plate of soup, served the fish without a sauce and continued to make error after error.

He succeeded in making a well planned dinner just an ordinary event. At the end of the dinner, the servant leaned over to the master of the house and said, "Please sir, can you spare me now? My house has been on fire for the last two hours."—*F. A. Raymond.*

---

## A FEW TOO MANY

"And did you do as I told you Jane and place that piece of wedding cake underneath your pillow when you went to bed last night? . . . and did you dream about your future husband?"

"I did," replied the other somewhat puzzled. "But that is what is worrying me."

"That should be no cause for worry."

"But you see, my dear, I dreamed about the whole fire department."

---

## WAS IT HOT OR COLD?

If you are good at solving Sam Lloyd's puzzles, here is one that might interest you. At a fire in Watertown, the captain of an engine company had the seat of his trousers burned away at a fire. While fighting the same fire, a fireman had his ears frozen. The problem is, was it hot or was it cold?

---

## ACCORDING TO RULE

In one of the cities, in addition to meeting the entrance physical examinations, the firemen must take periodic examination to see if they still keep up to the requirements. A fireman had a great weakness for putting on weight and the doctor prescribed a diet for him to follow. He was instructed to come again some time later for another examination.

The fireman returned at the end of the month but instead of losing weight, the fire-fighter had increased his waist measurement.

"Did you eat what I told you?" asked the doctor.

"Yes," replied the fireman somewhat nervously.

"Did you eat anything else?"

"Nothing but my regular meals."

---

## PERFECTLY SAFE

Two of the firemen stationed at one of the outlying companies developed the most delightful animosity towards each other. The others in the company and even those in the off-shift knew about the fued which was rather amusing at times.

At a fire, one of the men was injured and was in bed at home for several days. The other apparently buried the hatchet and went to pay a "friendly" call. When the visitor returned to the fire house, the other members of the company gathered around to find out how the injured man was getting on.

"And how is he getting along?" they chorused.

"He certainly is a very sick man."

"Is he in a dangerous condition?"

"Hell no, he's too weak to be dangerous."

---

## NEW TALENT

A fireman was on sick leave due to an injured hand. He had fallen down a cellar stair in fighting a fire. After a week's treatment he called to see the doctor so that he might know how the injury was getting along.

"When this hand of mine gets better, shall I be able to play the banjo?"

"You certainly will," replied the doctor.

"Gee, doctor, that's great. I always wanted to play the banjo, and I never was able to do it before."

—*Courtesy, New York World.*

**"That's the second time that the old dame called us out on account of her kitchen being full of burnt bacon smoke."**

# MATHEWS

(Reg. U. S. Pat. Off.)

## FIRE HYDRANTS

for

## DOMESTIC

and

## HIGH PRESSURE

Service

*NOTE—*

The positive waste value.

All operating threads are dry, being above the stuffing-box.

No toggles, no small, quick-wearing parts.

All moving parts are bronze or bronze-bushed.

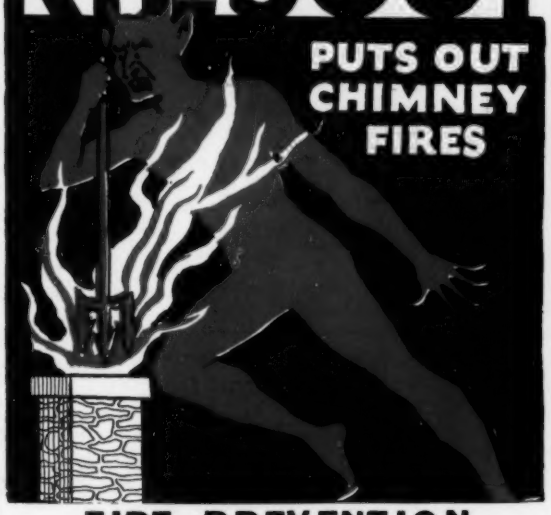
The outside casing permits replacing a two-way standpipe with a steamer and two-way standpipe without digging up the ground.

An easily installed
EXTENSION SECTION
readily adapts them to new grades.

VALVES and BOXES
CAST IRON PIPE
*(Sand-Cast or "Sand-Spun")*
FITTINGS

**R. D. WOOD & CO., Phila., Pa.**

# KILSOOT

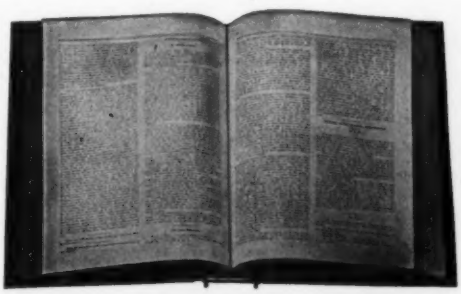



## FIRE PREVENTION

A better, safer and surer way to prevent and extinguish chimney fires is offered to fire chiefs and fire prevention bureaus in the use of "Kilsoot."

We repeat our offer to send liberal samples and full details regarding this remarkable chemical product—gladly furnished upon request.

**KILSOOT CHEMICAL COMPANY, INC.**
**530 West 58th St., New York**
Also makers of "Chimnee-Sweep"



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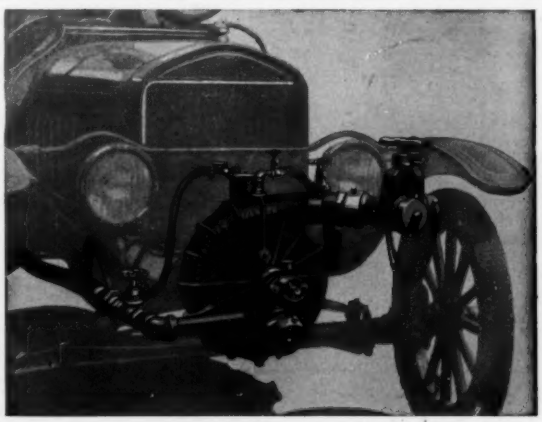

## FIRE PROTECTION

*At Low Cost*

*Here's the evidence—*

VERMONTVILLE, Mich.

"Gentlemen:

We are writing to inform you we are very much pleased with our Barton Fire Pump mounted on Reo Fire Truck which was purchased from you a few weeks ago. We have attended four fires and paid for the apparatus more than three times over at our first fire.

Very truly yours,
VANCE F. BARBER,
*Fire Chief."*

*Write for complete details.*

AMERICAN STEAM PUMP CO.
Battle Creek, Michigan

# Three New Books
# Every Fire Officer
# Should Have

***Questions and Answers for Battalion and Deputy Chiefs***

by Geo. J. Kuss, Former Deputy Chief N. Y. F. D., and Fred Shepperd, B. Sc., M. E., Managing Editor, FIRE ENGINEERING. It contains 210 pages of invaluable instruction for progressive fire department officers, and is indispensable for Captains, Battalion and Deputy Chiefs and other officers studying for promotion.

It contains questions from promotional examinations throughout the country, with answers by Deputy Chief Kuss, (N. Y. F. D.) and Fred. Shepperd. Price $2.00—postpaid $2.15.

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***Simplified Fire Department Hydraulics***

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A brand new book describing in a simplified method all of the rules and formulæ required in the solution of fire department promotional examination questions in hydraulics.

Also contains nearly 200 problems on hydraulics asked in examinations in large departments throughout the country. 170 pages fully illustrated. Price $2—postpaid $2.15.

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Please send me .....copies of Questions and Answers for Battalion and Deputy Chiefs, ..... copies of Questions and Answers for Lieutenants and Captains, and..... copies of Simplified Fire Department Hydraulics, for which I enclose a money order for $.....

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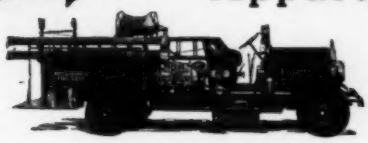
THE BI-LATERAL FIRE HOSE CO.
230 West Randolph St., Chicago, Ill.

If you purchase BI-LATERAL FIRE HOSE it will increase the value of your hose-carrying apparatus more than the cost of the load of Bi-Lateral Fire Hose.

We can load from 25% to 33% more and when coupled with rocker lug couplings the Bi-Lateral hose makes an apparatus one to be proud of and as near perfect as possible to do quick and efficient service.

Sanford Fire Apparatus



*All Types and Sizes*

Fire Apparatus Division
SANFORD MOTOR TRUCK CO.
Syracuse, N. Y.
*Builders of Quality Products for 15 Years*

# MORSE
FIRE BOAT EQUIPMENT
Invincible and Callahan Nozzles
Fire Department Supplies
are in use throughout the country and giving unsurpassed service.
Every fire official should be fully acquainted with Morse equipment and have our catalog and other descriptive literature on file for ready reference whenever considering the purchase of new equipment.
You will find that it pays.
Write for Catalog
Andrew J. Morse & Son, Inc.
221 High St. Established 1837 Boston, Mass.

# HALE PUMPS

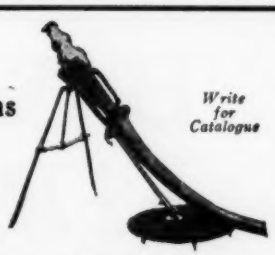
LONGER effective life, higher efficiency and greater freedom from trouble may be had by using Hale Dreadnaught Fire Pumps.

HALE FIRE PUMP CO.
Conshohocken, Pa.

# JOHN H. CLAY, INC.
1320 Ridge Ave., Philadelphia, Pa.
Established 1864

Manufacturer Siamese connections, fire hose couplings, plug connections, wrenches, etc.

Eastman Improved Platforms and Holders



*Write for Catalogue*

are indispensable where high pressure service is required. With Eastman equipment any size streams can be easily handled by one man.

Eastman Nozzles and DeLuge Sets
are designed by engineers who for over thirty years have specialized in equipment for producing fire-fighting streams that are unsurpassed for solidarity, distance and effectiveness.
Samuel Eastman Co.,
Concord, N. H.

*The "Corey" Fire Hydrant of the improved Rensselaer type is the easiest to operate of any on the market.*

*Ask for prices and details*

FILL IN AND MAIL TO
RENSSELAER VALVE CO., Troy, N. Y.
Send me Hydrant Book, No. 9.
Name .....
Street ..... City .....

# EDDY Fire Hydrants

Are given preference by so many fire protection and water works men because they know that more than half a century of experience go into their manufacture and they embody valuable and exclusive features.

*Write for the Facts*

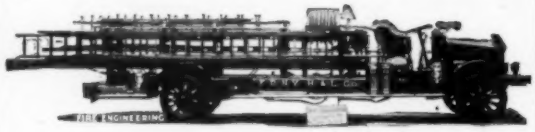
EDDY VALVE CO.
Waterford, N. Y.
James B. Clow & Sons, Chicago Agents

# BRAXMAR
## BADGES

have been the recognized standard for fire departments for almost 50 years. Used everywhere. More than 900 designs. Send for illustrated catalog and prices.

**C. G. BRAXMAR CO.**
242 W 55th St., N. Y. C.

# Light and Heavy



## City Service
## Hook & Ladder Apparatus

We build any type of Apparatus required and can furnish High Grade Ladders in either Trussed or Solid Side types. Each Ladder is carefully made, ironed, and equipped for safety, strength and service.

**Up-to-date FIRE FIGHTING APPLIANCES.**

***Write us when interested.***

**Combination Ladder Co., Inc.**
**381 Fountain Street Providence, R. I.**

# B & M
# *SIREN*

## Did You Hear Our Sirens While You Were in New Orleans?

You could not have helped hearing them. Fire Chief Evans' car had one on, the Ahrens-Fox Aerial Ladder had one on their exhibit car and have made the B & M Siren standard equipment on their apparatus. The American-LaFrance Fire Engine Company had a B & M on their exhibit car; our own demonstrator was there, and I know that you heard the Sirens in the parade. We blew them steadily for one and a half hours without any intermission. The B & M is the only siren today that you can blow for that length of time. Why? Because it is mechanically driven.

**Write for complete information. We gladly send B & M Sirens to any city on approval, transportation prepaid.**

**B & M Siren Manufacturing Co.**
Lester H. Miles, Owner
**931 So. Main St. Los Angeles, Calif.**

# Successful Since Sixty-Eight

## Worcester Fire Alarm Signals

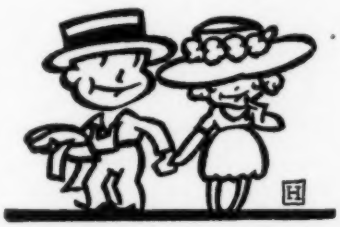
**Nothing is more important in fire service than the alarm. Protect yourself by taking advantage of the experience of the oldest fire alarm manufacturing specialists.**

**The Worcester Fire Alarm Signal is made to meet your requirements, either steam or air operated. Write for catalog R-51.**

**Union Water Meter Co.**
**WORCESTER, MASS.**
New York Office: 50 Church St.
Philadelphia Office: 411 Bulletin Bldg.

# Don't Be Bashful! Help Yourself!
## This is Your Page!

**Fire Protection Equipment And Supplies**



**Whenever you are in the market for new equipment you naturally want to get complete information from all reliable manufacturers before you place the orders for your department.**

**This page is a feature of every issue to make it convenient for you to get all this information without cost to you and without placing you under any obligation whatever to buy from any particular manufacturer.**

**You only have to run down the list of equipment and mail in the coupon below with your name and address and the numbers that indicate what you are interested in and we will then have the leading manufacturers of this equipment send you complete information direct—so why not let us help you get what you want? We are glad to be of service. Help yourself.**

1 Acid Siphons
2 Adaptors for Changing Hydrant Threads.
3 Acid Jars and Rings.
4 Aerial Ladders, Detachable.
5 Aerial Trucks.
6 Alarms, Siren, Electric.
7 Alarm Systems, Industrial.
8 Alarm Systems, Municipal Telegraphic.
9 Alarms, Thermostatic.
10. Asbestos, Clothing.
11. Badges, Insignias, Buttons, etc.
12 Banners, Trumpets, etc.
13 Battery Jars.
14 Battery Zincs for Fire Alarm Batteries.
15 Bells, Fire Alarm, Municipal.
16 Body Equipments.
17 Boxes, Gongs, Reels, Registers, Fire Alarm.
18 Brakes, Air.
19 Brake Linings.
20 Brooms, Fire.
21 Building Materials, Fire Retardant.
22 Cable & Wire, Fire Alarm.
23 Caps, Firemen's.
24 Chains, Non-Skid, Fire Apparatus.
25 Chassis for Fire Apparatus.
26 Chemical Engines and Tanks.
27 City Service Trucks.
28 Coats & Suits, Firemen's Quick Hitch.
29 Combination Chemical & Hose Cars.
30 Cutting & Welding Equipment, Blow Torch.
31 Cutting & Welding Equipment, Electric.
32 Deluge Sets.
33 Door Openers, Fire Station, Automatic.
34 Extinguishers, Fire, Soda & Acid.
35 Extinguishers, Fire, Tetrachloride.
36 Extinguishers, Fire, Foam.
37 Extinguishers, Fire, Powder.
38 Fire Boat Nozzle Equipment.
39 Fire Department Supplies, General.
40 Fire Drills & Organizations.
41 Fire Exit Devices, Door Opening.
42 Fire Alarm Posts.
43 Fire Escapes, Portable.
44 Fire Escapes, Rigid.
45 First Aid Equipment.
46 Flare Lights.
47 Flashlights, Hand.
48 Foam Liquid for Extinguishers.
49 Gas Masks and Respirators.
50 Gas & Smoke Helmets.
51 Gasoline & Oil Handling Equipment.
52 Goggles, Firemen's.
53 Helmets, Metal, etc.
54 Hose Carts, Reels & Racks.

TEAR OFF HERE

**FIRE ENGINEERING**

**225 West 34th St., New York City.**

**As a fire protection official I should like to have descriptive literature and complete information mailed to me, without cost or obligation, on the equipment indicated by the following numbers:**

Nos.....

Nos.....

Nos.....

Nos.....

Date.....

Name.....

Position.....

Street.....

City and State.....

.....

.....

.....

.....

**Fire Protection Equipment And Supplies**

55 Hose Clamps.
56 Hose Fire.
57 Hose, Chemical.
58 Hose Holders.
59 Hose Jackets.
60 Hose Standardization Tools.
61 Hydrant Draining Pumps.
62 Hydrants, Fire.
63 Jacks for Fire Trucks.
64 Jacks, Shoring & Prying.
65 Ladders, Fire.
66 Lightning Arresters.
67 Motorcycles, Fire Dept. Equipped.
68 Nets, Life.
69 Nozzles, Pipes & Misc. Brass Goods.
70 Packings, Pump.
71 Pads, Pole Hole.
72 Paints, Fire Resisting.
73 Priming Ether, Motor.
74 Pumping Cars, Standard.
75 Pumping Cars, Foam.
76 Pumps, Fire Apparatus.
77 Pumps, Fire Service, Stationary.
78 Pumps, Portable, for Fire Protection.
79 Record Books, Fire.
80 Relief Valves.
81 Reviving Apparatus, Oxygen.
82 Rubber Clothing.
83 Searchlights.
84 Shingles, Fire Retardant.
85 Shirts, Firemen's Special.
86 Sirens, Apparatus & Chiefs' Cars.
87 Sliding Poles.
88 Soda & Acid Chemicals.
89 Spark Plugs, Fire Apparatus & Motorcycles.
90 Squad and other Auxiliary Cars.
91 Sprinkler Head Shut-Offs.
92 Sprinkler Supervisory Service.
93 Sprinkler Systems, Automatic, Foam.
94 Sprinkler Systems, Automatic Water
95 Starters, Fire Apparatus, Automatic, Air.
96 Steam Fire Engines.
97 Tarpaulins & Fire Blankets.
98 Tetrachloride Chemicals.
99 Thawing Equipment, Hydrant.
100 Tires, Fire Apparatus, Pneumatic, Solid, Cushion and Non-Skid.
101 Tractors.
102 Traffic Clearing Systems.
103 Triple Combination Pumping Cars.
104 Uniforms.
105 Water Towers.
106 Wheels, Cushion.
107 Whistles, Fire Alarm, Compressed Air.
108 Whistles, Fire Alarm, Steam.
109 Whistles, Fire Apparatus.
110 Wrecking Trucks.

For Information on Any Equipment Not Listed Above, Write on This Page or Use Separate Sheet.

March 23, 1927

# He always meant to have a firesafe roof

He'll be sure that his new roof is firesafe, but he'd have saved himself some money—and the firemen a lot of trouble if he'd gotten Johns-Manville Asbestos Shingles in the first place.

JOHNS-MANVILLE CORPORATION, 292 Madison Ave. at 41st St., New York
*Branches in all large cities.* For Canada: Canadian Johns-Manville Co., Ltd., Toronto

Asbestos and its allied products
INSULATION
BRAKE LININGS
ROOFINGS
PACKINGS
CEMENTS
FIRE PREVENTION PRODUCTS

# JOHNS-MANVILLE
## Asbestos Roofing

# ADVERTISING INDEX

***Advertising Pays — in Fire Engineering***


| | PAGE |
|---|---|
| Ahrens-Fox Fire Engine Co. | 265 |
| American District Telegraph Co. | 269 |
| American-LaFrance Engine Co. | *Front Cover* |
| American Steam Pump Co. | 303 |
| Bi-Lateral Fire Hose Co. | 305 |
| B. & M. Mfg. Co. | 306 |
| Braxmar Co., C. G. | 306 |
| Brown Machine & Tool Co., L. P. | 300 |
| Buffalo Fire Appliance Corp. | 291 |
| C. A. M. Mfg. Co. | 268 |
| Clay, Inc., John H. | 305 |
| Combination Ladder Co. | 306 |
| Darling Valve & Mfg. Co. | 266 |
| Eastman Co., Samuel | 305 |
| Eddy Valve Co. | 305 |
| Eureka Fire Hose Mfg. Co. | *Back Cover* |
| Evans & Co., Geo. | 299 |
| Everson-Ross Co. | 296 |
| Fabric Fire Hose Co. | *Inside Back Cover* |
| Federal Electric Co. | *Inside Front Cover* |
| Firestone Tire & Rubber Co. | 310 |
| Foamite-Childs Corp. | 267 |
| Fulton Bag & Cotton Mills | 296 |
| Gibbs-Wahlert Mask Co. | 299 |
| Hahn Motor Truck Co. | 300 |
| Hale Fire Pump Co. | 305 |
| Hendrie & Bolthoff Mfg. & Supply Co. | 300 |
| Holtzer-Cabot Elec. Co. | 296 |
| **Information for Buyers** | **307** |
| International Harvester Co. | 299 |
| International Motor Co. | 292 |
| Johns Manville Corp. | 308 |
| Kilsoot Chemical Co. | 303 |
| Mack Trucks, Inc. | 292 |
| Maxim Motor Co. | 299 |
| Morse & Sons, Inc., Andrew J. | 305 |
| National Electric Specialty Co. | 299 |
| Pirsch & Sons Co., Peter | 300 |
| Quaker City Rubber Co. | 299 |
| Rensselaer Valve Co. | 305 |
| S. & M. Lamp Co. | 299 |
| Sanford Motor Truck Co. | 305 |
| Seagrave Corp. | 263 |
| Siracode Signal Corp. | 300 |
| Southworth Machine Co. | 299 |
| Sterling Siren Fire Alarm Co. | 292 |
| Union Water Meter Co. | 306 |
| Waterous Fire Engine Works | 270 |
| Waukesha Motor Co. | 295 |
| Wood & Co., R. D. | 303 |
| Woodhouse Mfg. Co. | 300 |



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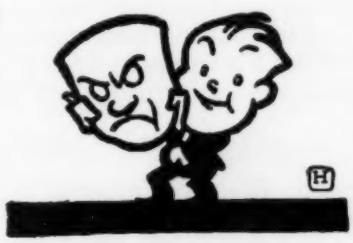
If not already on our regular subscription list to receive this magazine every issue, twice a month, we are sure you'll agree that you ought to fill out at once the blank below. It will bring you every issue for a year, 26 wonderfully interesting numbers for only $3—payable within 30 days after you receive our bill.



Name .....

Position .....

Address .....

**Yes or No?**

**It's up to you!**

Write plainly and mail to Fire Engineering, 225 West 34th St., New York

The Mark of Quality

*The Fire Department of Beverly, Mass., is another user of Firestone Tires. Chief Robert H. Grant writes, "These Firestone Tires have never caused the least trouble, in fact have never been removed since this apparatus was put in commission in 1924."*

# *Answering the Call* — FOR DEPENDABILITY

Gum-Dipped Tires have extra strength and ruggedness to withstand the stresses, strains, heat and speed of fire fighting. The extra Gum-Dipping process provides stamina, mileage and safety, by saturating and impregnating every fiber of cord with rubber, minimizing heat and friction. The powerful Firestone non-skid tread provides a new measure of safety for slippery streets, sudden braking and sharp turns.

Here are a few reasons why so many fire departments — after investigation and comparison — standardize upon Firestone Gum-Dipped Tires. You can depend upon the Firestone Dealer — not only for the economy, safety and comfort that only Gum-Dipped Tires can give but for the "Better-Service" which goes with these better tires.

MOST MILES PER DOLLAR

# Firestone

## GUM-DIPPED TIRES

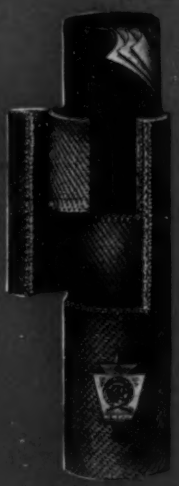
AMERICANS SHOULD PRODUCE THEIR OWN RUBBER . . Harvey S. Firestone

## An Unusual Advertisement —worth reading.

## An Unusual Hose —worth using.

# FIRE HOSE

MADE LIKE AN AUTOMOBILE TIRE *IN TWO PARTS* INNER TUBE *and* OUTER JACKET



### "Fabric" Features:

**Separable Inner Tube**

—lasts longer than same quality tube cemented to the fabric because it is in complete repose when hose is not in service.

**Will Not Slide or Buckle**

—the diameter of the tube is reinforced in such a way as to eliminate it.

### "Fabric" Features:

**A Wax and Gum**

treated fabric jacket—absolutely waterproofed by a special method. Cannot mildew or rot.

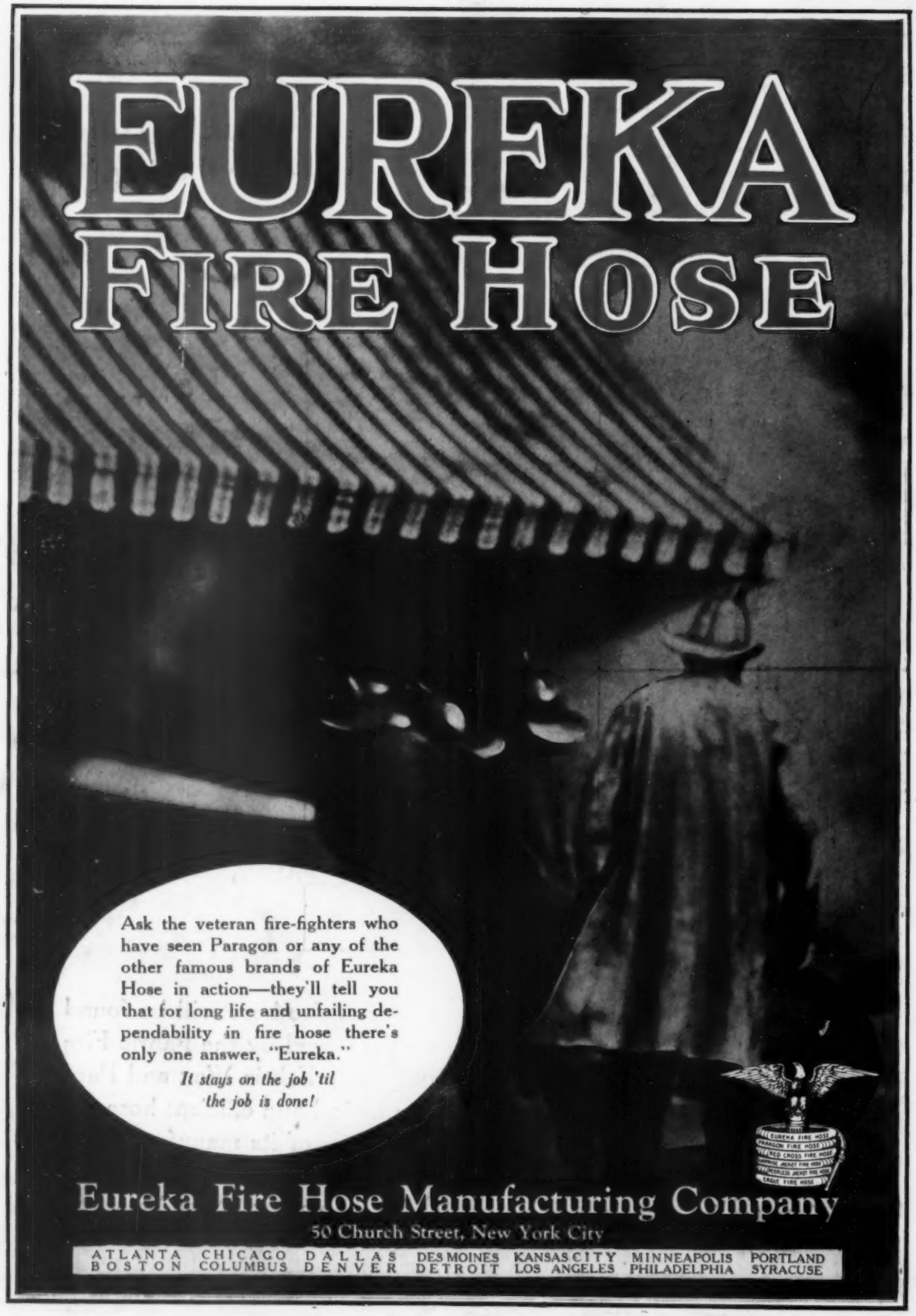
**Other New Features—**

The strands are "cabled" by a new process. The Durability of Fabric Hose is phenomenal.

## FABRIC FIRE HOSE CO.
NEW YORK

HOSE facts of interest to every buyer of fire hose will be found in the interesting illustrated booklet issued by the Fabric Fire Hose Co., New York, telling not only why Fabric Wax and Para Gum Treated Fire Hose is the most practical and efficient hose for you to use, but explaining the actual details of its manufacture so that you know just what you are buying and why it is superior. Write for it—Fabric Fire Hose Co., 127 Duane St., New York.

# EUREKA
# FIRE HOSE



Ask the veteran fire-fighters who have seen Paragon or any of the other famous brands of Eureka Hose in action—they'll tell you that for long life and unfailing dependability in fire hose there's only one answer, "Eureka."

*It stays on the job 'til the job is done!*

## Eureka Fire Hose Manufacturing Company

50 Church Street, New York City

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BOSTON COLUMBUS DENVER DETROIT LOS ANGELES PHILADELPHIA SYRACUSE



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